The Dark-Side of Banks' Non-bank Business: Internal Dividends in Bank Holding Companies *

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Abstract

Our study highlights the liquidity and capital pressures created by non-banking activities on banks residing within the same bank holding company (BHC). We use a large sample of BHCs with non-bank subsidiaries between 2001 and 2015 to show that banks bear the pressures of dividend smoothing, maintain or increase internal dividends to parents regardless of their own income, and holding companies use bank internal dividends to fund new investments in non-bank activities. In contrast, holding companies shield non-banks from the pressures of inflexible external dividend policies. Transfers to the non-bank are not associated with better ex-post performance than the bank. We use a difference-in-differences to show that BHCs whose constraints on non-bank activities were relieved by the Gramm-Leach-Bliley Act increased their bank segments' payout ratios by 12 percentage points relative to those that had not been constrained. Our evidence on the extraction of cash from banks to fund non-bank activities and capital market pressures to smooth dividends sheds new light on the debate on the optimal scope of BHCs. These observations support the arguments of a dark-side to internal capital markets in which the federally insured banks become a source of strength to the BHC and its non-bank segment, in contrast to the prevailing view that BHC is a source of strength to banks.

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I. Introduction

In a bank holding company (BHC), federally insured banks can co-exist with uninsured non-bank subsidiaries that operate in the areas of securities, insurance, and merchant banking. The passage of the Gramm-Leach-Bliley Act in November 1999, which eliminated barriers between banking and non-bank businesses, increased the acquisitions of non-banks by BHCs. This paper uses the disclosures of BHCs that offer a unique lens through which to view the internal cash flows of their segments and how those cash flows operate in affiliated banks and non-banks within a BHC.

Our focus is on the workings and efficiencies of internal capital markets. Internal capital markets can mitigate informational asymmetries between subsidiaries and investors as the parent can borrow directly from external markets and reallocate funds internally among subsidiaries (Gertner, Scharfstein, and Stein (1994), Stein (1997), Stein (2003)). This borrowing creates incentives for conglomerates to acquire financially constrained targets and relieve those constraints. Financial conglomerates differ in at least one important way, as the bank subsidiaries (which we collectively call the bank segment) has access to external capital and can be used as an internal source of funds for the rest of the holding company. This advantage can create the incentive to use the federally insured bank as the funding source for the non-bank segment. In addition, the BHC can rely on internal capital markets to determine support for its external dividend policy. BHCs pay higher and persistent dividends relative to industrials (Floyd, Li, and Skinner (2015), Acharya, Gujral, Kulkarni, and Shin (2013)). When BHCs maintain a smooth dividend stream to shareholders, this stream creates resistance to cutting dividends even when earnings are down. Therefore, we examine which segments of the BHC bear the burdens of supporting the dividend policies of the parent.

To examine how bank segments behave in the presence of non-bank business affiliates, we use data on the internal dividends of BHCs. The baseline sample comprises 1,821 observation over 283 distinct BHCs with non-bank subsidiaries for the period from 2001 to 2007. We also examine alternative samples of those BHCs with the largest representation of non-banks,

defined as a proportion of consolidated assets and also through alternative Y-11 regulatory filings for major non-bank subsidiaries. Briefly, the key results are as follows. We find evidence that BHCs use internal dividends to reallocate cash flows away from insured banks to non-banks and external dividends. Furthermore, the BHC does not rely upon the non-bank segment to support the bank segment or its external dividend policy. In addition, we demonstrate the disparate drivers of dividend policies between the bank and non-bank segments within these BHCs. The parent pulls capital from the bank segment whenever the segment's income increases, but does not decrease its capital demands when the segment's income decreases. In contrast, the non-bank segment internal dividends rise and fall with its income. Thus, non-banks appear to transfer resources to the BHC more on the basis of their abilities, while banks transfer cash to the parent more on the basis of its external distribution needs.

Many of the findings on internal capital markets between the bank and non-bank segment continue to hold during the crisis and post-crisis periods. The bank segment internal dividends are highly associated with external dividend policy both in the 2008-2010 sub-sample as well as the 2011-2015 sub-sample, whereas non-bank internal dividends are not associated with external dividend policy in either. With respect to income, the asymmetry of bank segment internal dividends sensitivity reverses during the crisis, showing sensitivity only for income declines, before resuming its pre-crisis behavior of sensitivity only to income increases. The crisis and post-crisis periods also suggest a further relief of burden on non-banks, as their internal dividends fall with increases in bank incomes during those periods.

Regarding the efficiency of the reallocation of capital from the bank to the non-bank segment, we show that our results are not driven by BHCs redirecting funds from low performing bank segments into higher performing non-bank segments. Instead, we find that on both a raw return-on-equity basis and a risk-adjusted basis, the bank segment tends to outperform the non-bank segment. In addition, BHCs that divert more funding from the bank segment to the non-bank segment tend to have worse non-bank performance, relative to the bank segment. These findings are consistent with theories of agency conflicts within the firm (e.g.

Scharfstein and Stein (2000) and Rajan, Servaes, and Zingales (2000)) as well as empirical papers on inefficient empire building (e.g. Morck, Shleifer, and Vishny (1990)). These results are also consistent with broader findings in banking and non-banking literature that show decreased performance when firms expand scope (e.g. Stiroh (2004), Stiroh and Rumble (2006), DeYoung and Torna (2013)).

Our findings have regulatory implications, especially in light of the revived debate on bank scope. While broad-scope banking potentially helps customers by giving them single-window access to a broad menu of services, these effects are not without costs. Regulatory concerns focus on the systemic risk that banks create because of their non-bank segments within the same BHC.[1] We highlight a different and somewhat subtle channel in which liquidity and capital pressures on the bank segment from its parent are a function of the holding company structure. BHCs pull funds from the bank segment to expand or support non-bank business as well as to fund external payouts. Thus, the funding and capital of banks residing in BHCs are subject to diversion, which reflects the pressures that the non-bank segments create.

We use the Gramm-Leach-Bliley Act (GLB) of 1999 to help identify a causal relationship between non-bank activity and bank segment internal dividend behavior. GLB removed existing restrictions on affiliations between banks and certain non-banks. Under GLB, BHCs could undertake such affiliations by becoming financial holding companies (FHCs) as early as March 2000. We argue that those BHCs that opted to become FHCs immediately after the passage of the law, in 2000, had previously been constrained by the restrictions, while those BHCs that did not opt to become FHCs after GLB had not been constrained. Our premise is that by eliminating the constraints, GLB generates exogenous variation in the expansion of non-bank activities between immediate adopters and other BHCs. Using a difference-in-differences analysis, we show that following GLB, the group of BHCs that had been constrained in their non-bank activities (the treated group) increased their bank segment payout ratios by twelve percentage points relative to the BHCs that had not been constrained.

[1] Laeven, Ratnovski, and Tong (2014) finds that systemic risk increases with the complexity of a bank. Meanwhile, De Jonghe (2010) finds that heterogeneity in banks' tail risk is attributable to differences in the scope of non-traditional banking activities.

Our paper adds to four bodies of literature. First, in terms of the extensive mergers and acquisitions literature, we focus on the existing segments of the acquiring firm and propose a new channel through which the BHC can relax a target's financial constraints. Namely, the target non-banks in our case do not share the burden of dividends with the existing bank segment and are shielded from the pressures of dividend payments. This strategy clearly can give the non-banks flexibility in terms of financing needs. In this regard, our paper complements Erel, Jang, and Weisbach (2015), who focus on the targets after acquisition by nonfinancial firms.

Second, our findings contribute to the literature on internal capital markets at conglomerates. The theoretical literature has advanced arguments for both the bright and the dark side of internal capital markets. On the bright side, internal capital markets create value by mitigating the asymmetries of information between subsidiaries and investors. In contrast to this value-enhancing role of an internal capital market, theoretical arguments exist to show its dark side. Scharfstein and Stein (2000) and Rajan, Servaes, and Zingales (2000) argue there could be inefficient cross-subsidization where strong segments subsidize weak ones. This inefficiency arises because of agency problems between rent-seeking division managers and the headquarters. Managers of weak divisions need to be bribed disproportionately, which leads to cross-subsidization and inefficient capital allocation. We explain the workings of internal capital markets not from the classical approach of allocating capital between different segments but though the extraction of capital from different segments to achieve the goals of the parent. Our findings are more consistent with the dark-side of internal capital markets. We show that BHCs use internal capital markets to extract capital in the form of internal dividends to pay external dividends. The parent taxes the segment with less constrained borrowing (insured banks), and protects the segment with costly borrowing (uninsured non-banks).This is also consistent with Shin and Stulz (1998) who show that small firms within the conglomerate are protected. In our case, inefficiency arises not through the allocation of capital to bribe the weak subsidiary managers but through the exploitation of the segment that has access to the government safety net.

Third, the results presented in the paper fit into a large literature on the internal capital markets at BHCs. One primary dimension on which the literature focuses is the management of loans using internal capital markets between banks within a BHC. Evidence exists that multibank holding companies establish internal markets such that loan growth is smooth (Houston, James, and Marcus (1997), Houston and James (1998), Holod and Peek (2010)). The literature also shows that internal capital markets lessen the impact of monetary policy on bank lending and reallocate resources to those banks with greatest need for capital and that this reallocation occurs through loan sales and purchases (Campello (2002)). Further, banks raise deposit rates at branches in one state to help fund loan growth in other states (Ben-David, Palvia, and Spatt (2015)). Another branch of this literature focuses on lending by multinational bank subsidiaries. De Haas and Van Lelyveld (2010) find that the parent's financial strength is an important determinant of credit supply for foreign subsidiaries in times of crisis. The existence of the workings of internal capital markets is also confirmed in Cetorelli and Goldberg (2012) who show liquidity is reallocated within the organization in a manner such that those affiliates deemed most important for revenue generation are protected while traditional funding locations are used as a buffer against shocks to the parent balance sheet. In contrast to these studies, we study the internal capital markets at work between bank and non-bank segments within the conglomerate and we examine the internal dividends rather than focusing on loans sales and purchases.

Fourth, our paper contributes to the literature on scope-economies in general and banking in particular. Cetorelli, Jacobides, and Stern (2017) demonstrate the expansion of non-bank activities over time and report a negative relationship between scope expansion and BHC performance. Their results are consistent with both a narrower literature in banking that finds a similar result (e.g. Stiroh (2004), Stiroh and Rumble (2006), DeYoung and Torna (2013)) as well as a broader literature on scope-economies (e.g. Comment and Jarrell (1995), Morck, Shleifer, and Vishny (1990), Matvos, Seru, and Silva (2018), Villalonga (2004), Schoar (2002)). In contrast, our paper focuses on the internal dividends through which BHCs achieve their scope economies. We find that scope expansions via internal dividends is generally

associated with a diversion of funds from a higher performing bank segment to a lesser performing non-bank segment. This is generally consistent with the literature, though it examines performance at the level of the conglomerate.

The paper is organized as follows. Section II describes the regulatory oversight of dividend payments at BHCs. Section III considers a framework for understanding internal dividends at BHCs. Section IV describes the data and provides our empirical specifications. Section V presents an ordinary least squares. Section VI presents results on the segment level returns on equity. Section VII presents the difference-in-differences results. Section VIII concludes.

II. Regulatory oversight of dividend payments at BHCs

Regulatory concerns relating to a BHC's incentive to use the bank segment as a support for other parts of the BHC are addressed by Sections 23A and 23B of the Federal Reserve Act. These sections require that transactions across affiliates within the BHC be conducted at arms' length, including: credit decisions, asset sales, and leases. In addition, these regulations restrict advertising that suggests that the bank shall in any way be responsible for obligations of its affiliates. Thus, regulation recognizes the incentive to use the bank to support a non-bank affiliate and restricts doing so through these channels.

Yet, the Bank Holding Company Supervisory Manual (BHCSM) also explicitly argues in favor of using bank internal dividends to support a struggling non-bank affiliate. The guidance argues that a failing non-bank subsidiary within the BHC structure can undermine confidence and that it might be prudent for the BHC to support the problem non-bank, despite the bankruptcy remoteness of the subsidiary. Furthermore, "because the bank is usually the largest subsidiary, the holding company may attempt to draw upon the resources of the bank to aid the non-bank subsidiary. The bank can transfer a substantial portion of its capital through dividends to the parent company, which may pass these funds on to

the troubled non-bank subsidiary." (BHCSM, 2016 Section 4030.0). Consequently, internal dividends remain a mechanism through which the BHC can use the bank to support the rest of the organization.

Notwithstanding the guidance suggesting that BHCs rely on banks for internal dividends to support the non-bank, the prevailing view in the banking literature is that the BHC serves as a "source of strength" for the bank. Indeed, the BHCSM also acknowledges that BHCs manage capital on a consolidated basis, pulling dividends from subsidiaries and reallocating capital those needing it the most (BHCSM, 2016, Section 2010.1). The underlying principle of this strategy is the expectation that BHCs should serve as a source of managerial and financial strength for their subsidiary banks (BHCSM, 2016, Section 2020.5). Furthermore, guidelines recognize that "a bank holding company should not maintain a level of cash dividends to its shareholders that places undue pressure on the capital of bank subsidiaries, or that can be funded only through additional borrowings or other arrangements that may undermine the bank holding company's ability to serve as a source of strength" (Board of Governors of the Federal Reserve System (2016), (BHCSM), Section 2020). Finally, capital requirements dictate minimum levels of capital for both bank subsidiaries and the BHCs. In this context, regulators have the ability to limit a bank's transfer of capital (internal dividends) to the parent.

Another important distinction between the regulatory treatment of banks and non-banks in a BHC arises in the context of failure. The Financial Institutions Reform and Recovery Act of 1989 (FIRREA) allows the Federal Deposit Insurance Corporation (FDIC) to assess the cost of resolving a failed depository institution within a BHC against other depository institutions controlled by the same BHC. However, this cross-guarantee provision does not apply to non-banks. Nevertheless, Ashcraft (2008) argues that the Federal Reserve has the authority to force a parent's divestiture of a non-bank subsidiary to support a struggling depository institution. Yet, Clause (ii) of 12 USC 1831 o(f) (2)(I) specifically notes that the regulating authorities can force divestiture of a non-bank affiliate under the condition that they determine "that the affiliate is in danger of becoming insolvent and poses a significant

risk to the institution, or is likely to cause a significant dissipation of the institution's (IDI's) assets or earnings."[2] In addition, there is no precedent that interprets this statute. Therefore, capital held in a healthy bank subsidiary is at risk when an affiliate bank subsidiary fails, but capital held in a non-bank remains bankruptcy remote in the presence of a failing bank affiliate. This may then affect where in the BHC the parent chooses to locate any excess capital.

III. Internal dividends at BHCs

Our analysis examines the internal capital markets in BHCs where insured banks operate alongside non-banks. This organizational structure is akin to the conglomerate structure in non-financial conglomerates, where multiple but different business lines exist as separate companies within a holding company. Part of the value of having a conglomerate structure among non-financial firms is their ability to use internal capital markets to ease the credit constraints on its subsidiaries as discussed in Stein (1997). The parent company can raise more total resources from the financial markets than individual subsidiaries and can allocate funds to the highest net-preset-value projects. But, the conglomerates in our setting–BHCs–differ significantly from non-financial conglomerates. Foremost, they already have access to relatively inexpensive and minimally constrained funding through their bank subsidiaries. Consequently, a BHC parent might not need to tap financial markets to channel funds to its credit-constrained subsidiaries. Instead, the bank segment itself may be the source of relaxed credit constraints for the rest of the holding company.

The presence of a bank segment with access to its own cheap external funding provides two possible channels through which the internal dividends can be used to support the BHC. First, internal dividends from the bank segment can allow the parent to ease the credit constraints on the non-bank in the sense of Erel, Jang, and Weisbach (2015). In particular, the parent can choose to pull resources from the bank segment rather than resorting to financial markets

[2]IDI is an acronym for Insured Depository Institution

to fund projects outside of the banking segment. For example, bank resources can be used to fund the non-bank acquisitions.

Second, the parent can rely on internal dividends from its bank segment to support its external dividend policies. Floyd, Li, and Skinner (2015) suggests that BHCs are more likely to pay and to increase their dividends relative to other firms. Given these pressures, the acquisition of a non-bank can dampen the pressure on the bank segment if the non-bank supports the parent's dividend policy. Alternatively, a non-bank acquisition can exacerbate pressure on the bank segment if the non-bank contributes to the BHC's consolidated cash flow, but does not use that income to support an inflexible external dividend policy. In this case, the parent must pull resources from the bank segment via internal dividends to support external distributions.

Our arguments predict that when a nonbank is among the subsidiaries of a financial conglomerate, the bank segment's internal dividends might be insensitive to negative changes in its own income. That is, when the bank income is down its internal dividends might not go down. In contrast, the non-bank segment does not have access to external funds and might be forced to reduce its internal dividends when faced by declining income. Such asymmetric sensitivity to negative changes in own income is consistent with the bank segment being a source of strength. In addition, if only the bank segment is sensitive to changes in external dividends, this sensitivity provides further support for this argument.

We follow three steps to construct our tests. First, we examine a sample of financial conglomerates that have bank and nonbank segments. We measure the sensitivity of each subsidiary's internal dividends to changes in income and changes to external dividends while controlling for capital and profitability. Next, we examine the ex-post outcomes of the re-allocation of capital within the BHC based on the net cash flows between the bank and non-bank segments and the parent. Last, we use the difference-in-differences approach surrounding GLB to examine how BHCs that had been constrained on their non-bank activity change their bank segment internal dividend policy following the removal of those constraints, relative to a group of BHCs for whom the constraints were not binding.

IV. Data and Empirical specification

A. *Data*

A critical aspect of our analysis is the classification of bank and non-bank subsidiaries into two identifiable segments of a BHC. Over time, the organizational structures of BHCs have become extremely complex and data sources for various segments and the holding company itself have become dispersed because of a number of regulatory filings (Avraham, Selvaggi, and Vickrey (2012)). We explain in Appendix A this complex structure and various regulatory filings that we need to construct the data and the sample. Typically, a BHC can have operating bank and non-bank subsidiaries, as well as subsidiary BHCs. The subsidiary BHC can have similar structure expanding the parent BHC downward resulting in a complex structure.

All bank subsidiaries file quarterly Call Reports that contain detailed financial information. To construct our definition of the bank segment, we add bank variables across all Call Report filers held within a parent BHC. Non-bank subsidiary financial reporting is neither as detailed nor universal. However, cash flows from non-banks can be measured indirectly through Y-9LP filings of parent and intermediate holding companies. In particular, the Y-9LP filings contain information on parent and intermediate BHC dividends from, undistributed income gains from, equity investments in, and debt investment in its subsidiaries segmented by bank, non-bank, and BHC. To obtain the non-bank segment for the conglomerate, we aggregate income and investments across all BHCs within the structure. Consequently, each non-bank dollar of income or assets is counted only once, corresponding to the lowest level of BHC owner. Because non-banks include thrifts in the Y-9LP definition, we subtract any thrift data (available from Call Reports) from the non-bank segment where appropriate. A fuller description of the data sources is provided in Table A.10. In robustness, we also use regulatory filing of major non-bank subsidiaries (FR Y11 filings) of a BHC to directly measure the activity of major non-banks from banks. Using this definition, we similarly aggregate non-banks across the BHC into a single "non-bank segment", using only the highest filing Y-11 non-banks within a branch of the organization to ensure that we do not double-count

income, dividends, or assets.

Our sample period for the baseline regressions starts in 2001 due to the expansion of BHC non-bank activity after the passage of Gramm-Leach-Bliley Act in November 1999 (discussed further below). We end in 2007 so as to not confound our analysis with the 2008 financial crisis. We also follow Benartzi, Michaely, and Thaler (1997) and use annual rather than quarterly data. This is necessary as BHCs pay dividends with differing frequency throughout the year. In addition, dividend changes are often coincidental with annual shareholder meetings that induce institution-specific seasonality. We provide a detailed discussion of the data and the aggregation of segments in Appendix A. To remain consistent across changes to reporting requirements, we require that consolidated BHC assets are greater than $500 million through the sample period. In addition, because we rely on the Y-9C data as a measure for conglomerate assets, we exclude foreign banking organizations, as the top Y-9C filer does not correspond to the ultimate parent within the conglomerate. Our baseline sample using Y-9LPs with indirect measurement of non-banks has 1,821 BHC-year observations, representing 288 unique BHCs. In extensions of the analysis, we include data from 2001 through 2015.

B. Determinants of bank and non-bank segments' internal dividends

To compare bank and non-bank segments' internal dividend behaviors, we estimate the following base line ordinary least squares (OLS) specification:

$$\Delta D_{ijt} = \beta_1 \Delta I_{ijt} + \beta_2 \Delta I_{kjt} + \beta_3 \Delta XD_{jt} + \beta_4 EQ_{ij,t-1} + \beta_5 ln(CA_{jt}) + \beta_6 ROE\_Spread_{j,t-1}, \quad (1)$$

where ΔD_{ijt} is the change dividend payment of the ith segment of BHC j at time t. The ΔI_{ijt} and ΔI_{kjt} are the changes in net income between period t and $t-1$ for segment i and k, respectively, of BHC j at time t. The ΔXD_{jt} is the change in external dividends between period t and $t-1$ for BHC j. We also control for book equity (EQ) of segment i at time $t-1$. All flow variables are deflated by consolidated assets and capital ratios are measured as the asset-weighted average ratios among subsidiaries in the segment. The CA_{jt} is the average

consolidated assets of BHC j from time $t-1$ to t.

An important control variable is the investment opportunities at the segment level, where we use lagged values of the return on equity (ROE) as a proxy for the expected ROE .[3] In particular, we construct ROE Spread as the difference between non-bank and bank segments' returns on equity and interpret it as the non-bank segment investment opportunity relative to the bank segment. If BHCs are efficiently allocating resources to the highest return segment, then we expect the non-bank (bank) segment to pay less (more) internal dividends when the non-bank segment's relative investment opportunity is higher.

This regression equation models the year-to-year change in internal dividends of a segment as a function of three primary factors: sensitivity to its own income, sensitivity to other segments' income, and sensitivity to change in external dividends. However, the sensitivity of a segment's internal dividends to cash flows across the BHC can be misleading in the face of asymmetries. For example, a segment can pay a dividend on its excess cash flow to its parent in good times without the benefit of relaxing dividend payments when earnings are down. Similarly, segments can upstream capital in the case of cash flow shortages elsewhere, without the benefit of a decreased pull from the parent in the face of BHC -wide excess cash flow. Therefore, we need to test for asymmetric responses to changing cash flows to assess whether a segment faces an implicit tax or subsidy from the parent. To provide a test, we estimate Equation 2, a version of Equation 1 that allows for asymmetric responses of the dependent variable to positive and negative values of the segments' own income, the other segment's income, and external dividends. That is, we split each of the flow variables X in the regression into two: $X_+ = \max(X, 0)$ and $X_- = \min(X, 0)$:

$$\begin{aligned}\Delta D_{ijt} &= \beta_1^+ \Delta I_{ijt}^+ + \beta_1^- \Delta I_{ijt}^- + \beta_2^+ \Delta I_{kjt}^+ + \beta_2^- \Delta I_{kjt}^- \\ &\quad + \beta_3^+ \Delta XD_{jt}^+ + \beta_3^- \Delta XD_{jt}^- + \beta_4 EQ_{ij,t-1} + \beta_5 ROE\_Spread_{j,t-1} + \beta_6 ln(CA_{jt}) \quad (2)\end{aligned}$$

[3] Both bank and non-bank segments' ROEs have a statistically and economically significant level of persistence. For banks, the autoregressive coefficient is about 0.65, while for non-banks it is about 0.40. This result holds true both with and without time fixed effects.

By allowing for asymmetric responses, we can determine whether the parental taxation rate of one segment responds differently to the positive or negative earnings outcomes of the other segment or the earnings outcome of the BHC.

V. Results

A. Summary statistics

As we indicate above, we create data on bank and non-bank segments by aggregating the respective subsidiary data for each BHC in our sample. Table I provides statistics for the BHC and the bank and non-bank segments analyzed in our baseline regressions. The flow variables are winsorized at the 1st and 99th percentiles. All level variables are in 2010 dollars.

We observe that the average BHC in our sample is quite large at $23.1 billion, and the asset measure has significantly positive skewness. The vast majority of the assets are held in the bank segment, with aggregated average assets of $20.0 billion in the pre-crisis sample. The aggregated non-banks account for $5.6 billion in assets on average. The relative size differences between the bank and non-bank segments persist in the crisis and post-crisis samples. The consolidated balance sheet is smaller than the aggregated segments because intrafirm exposures are netted in the consolidated balance sheet.

As a fraction of BHC assets, the bank segment income (1.36%) is notably larger than the non-bank segment income (0.15%) in the pre-crisis period, with similar differences in the post-crisis period. During the crisis, both bank segment and non-bank segment incomes were depressed, to 0.07% and 0.04%, respectively. Although the fraction of income from the non-bank segment is relatively small, its contribution to BHC income variation is a similar order of magnitude to the bank segment. The standard deviation of non-bank income to BHC consolidated assets is larger than that of the bank segment in the pre-crisis period (1.36% to 0.87%, respectively). This pattern reversed during the crisis period, during which bank segment incomes varied more (standard deviation of 1.81% versus 0.97%). In the post-crisis

sample, non-bank and bank segment incomes contributed similarly to BHC income variation (0.94% to 0.99%, respectively).

The bank and non-bank segments distribute their income to the parent via internal dividends. The non-bank payout ratios are systematically higher than the bank payout ratios (e.g. 63.4% to 53.0% in the pre-crisis period). In the pre-crisis period, bank segment internal dividends to the parent made up a large portion of parent income, at 0.79% of BHC assets, relative to non-bank segment internal dividends at 0.11%. The income to the parent from its subsidiaries is used to help fund its external distributions. Pre-crisis, the parent distributed 0.78% of its consolidated assets to external shareholders, with 0.51% coming in the form of dividends and 0.27% in the form of share repurchases. Both dividends and share repurchases declined in the crisis period and recovered somewhat in the post-crisis period, though repurchases did so to a lesser extent.

The non-bank segments in our sample data include many different kinds of non-banks. Figure 1 shows the number of sample BHCs in a given year with at least one non-bank subsidiary of various types. The subsidiary types are not mutually exclusive and the figure is not exhaustive of all non-bank types. Among the most prominent subsidiary types within the non-bank segment are those that have an insurance charter, which may include insurance brokerage and underwriting services. The number of BHCs in the sample with insurance charters expands dramatically following the passage of Gramm-Leach-Bliley in 1999. Non-depository credit intermediation is another major subsidiary type within the non-bank segment, with fairly stable numbers in our sample until the financial crisis when it began falling. Securities and commodities contracts and holders of a broker dealer charter also both rose following the passage of Gramm-Leach-Bliley and are two of the other major subsidiary types represented in the non-bank segment. Real estate, professional and technical services, activities related to credit intermediation, and social services are also major non-bank types, though are flat through the sample period. Information subsidiaries began the sample period as one of the most represented non-bank types, though declined considerably beginning in the early 2000s.

It is important to note that our definition of the non-bank segment excludes non-banks

that are subsidiaries of a bank. Given that these subsidiaries fall under the regulatory processes governing the bank, we would expect that cash flows would be managed differently. In addition, the Y-9LP data does not allow us to disaggregate cash flows from legal entities held within the bank segment.

B. Baseline results

In Table II, we report the results from our baseline OLS specification on the changes in internal dividends as a function of income and external payouts. In Panels A and B, the odd columns correspond to Equation 1, even numbered columns correspond to Equation 2. In Panels C and D the columns have similar correspondence to Equations 1 and 2 but the external dividends reflect external payouts, which is the sum of external payouts and share repurchases.

In column 1 of Panel A we show that the bank segment's dividend distributions are strongly sensitive to changes in external dividends and show no sensitivity to bank or non-bank segment incomes. A $1 change in BHC external dividends is associated with a $0.67 change in bank internal dividends, significant at the 1% level, after controlling for other variables. Meanwhile, in column 3 of Panel A we observe that non-bank internal dividends exhibit no sensitivity to external dividend distributions or bank segment income but are sensitive to non-bank income. A $1 change in non-bank segment income is associated with a $0.18 change in internal dividends paid to the parent. Thus, non-banks appear to transfer resources to the BHC more on the basis of their abilities, while banks transfer cash to the parent more on the basis of its external distribution needs.

In column 2 of Panel A we show the estimates for Equation 2, where we measure sensitivities to income increase and decrease. We observe that the bank segment internal dividends have a one-sided sensitivity to bank income and a strong sensitivity in both directions to external dividends. When banks' incomes increase, these increases are passed to the parent ($0.09 increase in dividends on a $1 increase in income), but the sensitivity to income

decreases is insignificant, indicating that parent does not decrease the banks' dividend burden when the banks' income decrease. In contrast, in column 4 we show that the non-bank segment responds symmetrically to non-bank segment income increases and decreases. A $1 increase (decrease) in non-bank segment income is associated with a $0.17 increase ($0.20 decrease) in non-bank internal dividends to the parent. Non-bank internal dividends are not sensitive to bank segment income or external distributions.

In Panels C and D, we test the robustness of the results when we define external payouts inclusive of repurchases. The results are qualitatively similar, with banks absorbing the burden of external payouts and the non-banks being protected. In the case of external distributions including repurchases, there is weak evidence that the non-bank also supports increases in share repurchases. Column 8 estimates that a $1 increase in total external repurchases is associated with a $0.015 increase in non-bank internal dividends, significant at the 10% level. Otherwise, the findings are fairly similar across the two measures of external distributions.

In our framework, we assume decisions on external dividends are exogenous to the parent's decisions on internal dividends. However, external dividends might be endogenous if there is an outstanding regulatory enforcement action against a subsidiary bank that restricts its internal dividend payments. In this case, external dividends might be driven by the dividend restriction, which violates our assumption. Yet, if external dividends are reduced in response to the dividend restriction, then our estimates would be biased downward; the unrestricted BHC would have an even stronger relation between external dividends and banks' internal dividends.

To assess the economic significance of the results reported in Table II, we separate bank segments into those with income increases (1274) and decreases (547). The average income change and the average parent dividend behaviors can then be used to measure economic significance. Using the coefficients from Table II, we calculate the average resulting effect on bank segment capital via internal dividend behaviors (income less internal dividends).For example, conditional on bank segment income increases, we calculate the average income

increase (29 bps of consolidated assets), the average external dividend increase (7 bps), and the average external dividend decrease (3 bps). Multiplying each of these by their coefficients in Table II column 2 and adding them yields an increase in bank segment internal dividends of 7 bps. We perform a similar calculation for bank segments with income decreases. For this group, income decreases are 35 bps, external dividend increases are 149 bps and external dividend decreases are 6 bps. Using the coefficients from Table II column 2, we find the internal dividends increased on average by 5 bps for this group.

On average the effects of external dividend policy and bank income on internal dividend policy imply that the bank segment capital increases by 22 bps (relative to BHC consolidated assets) following bank segment income increases (29 bps less 7 bps). On the other hand, bank segment capital decreases by 40 bps (-35 bps less 5 bps) following bank segment income decreases. Absent effects of income or external dividends on internal dividend policy, the income increases would on average increase bank segment capital by 28 bps and income decreases would have decreased them by 35 bps. Thus, the internal capital management of BHC policy doubles the asymmetry between upturns and downturns on bank segment capital.

C. Crisis and Post-Crisis

Our baseline analysis focuses on the time period after the passage of the Gramm Leach Bliley Act and before the onset of the 2008 financial crisis. In Table III we examine the internal capital markets of bank holding companies with regard to their bank and non-bank segments during the crisis (2008-2010) and post-crisis (2011-2015) periods. We end our sample at 2015 because Federal Reserve reporting thresholds for BHCs changed in that year.

In columns 1 and 2 we report regression estimations from Equation 2 during the crisis period. As was the case in the pre-crisis period, bank segment internal dividends are sensitive to external dividend distributions of the parent, with similar magnitudes. A $1 increase (decrease) in parent dividends is associated with a $0.62 increase ($0.73 decrease) in internal bank segment dividends. However, bank segment internal dividends were also sensitive to

downward bank income shocks during the crisis with a $1 decrease in bank segment income associated with a $0.07 decrease in bank segment internal dividends.

Non-bank segment internal dividends were similarly sensitive to decreases in non-bank segment incomes during the crisis with a $1 decrease in income associated with a $0.13 decrease in non-bank dividends. Unlike the pre-crisis period, non-bank segment dividends were not statistically sensitive to increases in non-bank segment income during the crisis. In addition, there is some marginal evidence of inter-segment risk sharing with the bank segment during the crisis. The non-bank cut (raised) its internal dividend by $0.009 ($0.004) for every $1 increase (decrease) in bank segment income. Non-bank sensitivity to changes in external dividends is insiginificant showing that the burden of external dividends is on the bank segment. We observe no sensitivity to external dividends.

Regression estimates using the post-crisis sample period (Columns 3 and 4) largely resemble those in the baseline for the bank segment. The bank segment increases dividends with bank segment income increases, but does not decrease them with bank segment income decreases. The bank segment is also predominantly responsible for external dividend distributions in the post-crisis period: a $1 increase in external dividends is associated with a $0.56 increase in bank segment dividends. Bank segment internal dividends are not statistically related to bank segment decreases in the post-crisis period, though the parameter estimate is $0.33. For the non-bank segment, most of the variables are not significantly related to non-bank dividends in the post-crisis period. However, bank segment income increases and non-bank segment income increases are marginally significant at the 10%.

Columns 5 and 6 report pooled regressions across periods for the bank and non-bank segments, respectively. Consistent with regressions from the disaggregated periods, bank segment internal dividends are foremost associated with external dividend distributions and non-bank segment internal dividends are primarily associated with non-bank segment income. To a lesser extent, bank segment internal dividends are associated with increases in bank segment income (driven by the non-crisis periods) and decreases in bank segment income (driven by the crisis period). Meanwhile, non-bank segment internal dividends are also associated

with bank segment income increases, driven by the crisis and post-crisis periods. This last finding suggests that since the beginning of the crisis, the non-bank's burden on funding the parent has been relieved when the bank segment is performing well.

D. Use of internal dividends

The accumulating evidence shows that banks serve as a source of financing for the BHC. In contrast to the non-bank segment, the parent pulls internal dividends from the bank segment independently of its performance. Also, the bank segment's internal dividends appear to be sensitive to changes in external dividends while the non-bank segment's internal dividends are not. However, we have yet to show whether the BHC diverts funds to non-bank affiliates from the bank segment.

To do this, we examine the relation between bank internal dividends and nonbank investment using Equations 1 and 2. The left-hand side variable is changes to bank segment internal dividends, while the right-hand side variables are expanded to include changes in non-bank investments (Δ*Nonbank Inv*). This variable uses changes in Y-9LP parent equity investments in non-banks that are not the consequence of unrealized capital gains. To this we add changes in parent debt investments in non-bank subsidiaries. Recall that Sections 23A and 23B require that the bank segment must transact with the parent and affiliates at arm's length. However, these rules do not restrict the ability of the parent to lend to non-bank affiliates. Thus, the BHC can upstream funds from the bank to the parent, which can then lend or inject capital to non-banks.

The results in Table IV support the hypothesis that the BHC channels some of the bank segment's internal dividends to the non-bank segment. In columns 1 and 2 we report regressions results from Equations 1 and 2. We observe that non-bank investments are significantly related to bank segment internal dividends. A \$1 increase in parent investment in its non-bank segment is associated with a \$0.07 increase in bank segment dividends. Notably, this is a stronger relationship (in magnitude and significance) than the bank segments' internal

dividends is to bank segment income. In Columns 3 and 4, we report results from a similar regression, using a narrower definition of parent investment in non-banks to only equity investments. The results are of similar magnitude, but significant only at the 10% level.

E. Non-bank Segment Size

In the interest of maintaining a sufficiently large sample, our analysis thus far includs all BHCs with any reported non-bank segment, according to the Y-9LPs. Given that the role of non-banks within BHCs differs, in this subsection we investigate the baseline results restricting attention to only those BHCs with a relatively large non-bank presence.

Table V reports two sets of regressions. In the first set of regressions (Columns 1, 2 and 3), we restrict attention to those BHCs in which non-bank segment consolidated assets represent at least 3% of total BHC assets.[4] Although this implies that the bank segment is still substantively larger, these BHCs are in the approximate top third of non-bank presence, as measured by assets. In addition, banks tend to be asset heavy relative to other types of subsidiaries. Therefore, assets may not reflect the relative importance of the segment within the BHC (e.g. with regard to income), but do provide a stable measure of the non-bank for the purposes of this analysis.

Column 1 reports regression results from the baseline version of Equation 2. Like Table II, we find that bank segment internal dividends are sensitive to external dividends: A $1 increase in external dividends is associated with a $0.59 increase in internal bank dividends and a $1 decrease in external dividends is associated with a $0.77 decrease in internal bank dividends. In addition, bank segment dividends are sensitive to increases at the 1% level, but not sensitive to decreases in bank segment income. Finally, a $1 increase in non-bank income associated with a $0.39 decrease in bank segment dividends, significant at the 10% level. Findings from Table IV are also born out in Table V, as Column 2 shows that investments in the non-bank segment are also associated with bank segment internal dividends. Column 3 shows that for the subsample of BHCs with large non-bank segments, non-bank internal

[4]Our results are not sensitive to this particular threshold, subject to the sample remaining sufficiently large.

dividends resemble those of the baseline regressions. Non-bank segment dividends are strongly associated with non-bank income.

In Columns 4-6, we use Y-11 filings of non-bank subsidiaries to further examine the robustness of our results. Unlike the Y-9LP indirect measurement of non-banks through the filings of the parent and intermediate BHCs, the Y-11 filings directly measure non-bank financial activity. However, the Y-11 filings are filed only by a subset of non-bank subsidiaries within a BHC: smaller non-bank subsidiaries or those that are already required to submit regulatory filings to another agency (e.g. a broker-dealer to FINRA) do not file Y-11s, though an intermediate non-bank parent may file. Column 4 reports results from the baseline regression using the Y-11 sample to define BHCs with substantive non-bank activity. As in the other samples, bank segment internal dividends are associated primarily with external dividend distributions. In addition, bank segment internal dividends respond asymmetrical to bank segment dividends, rising with income increases but not changing with income decreases. Column 5 shows tha the association between non-bank investment and bank internal dividends also extends to the Y-11 sample. Finally, Column 6 shows that the non-bank segment results also extent to the Y-11 sample. Non-bank segment dividends rise and fall with non-bank income. The Y-11 sample also shows weak evidence that the non-bank segment dividends decrease with bank segment income.

VI. Efficiency of Internal Cash Flows and Investment

A natural question emerges regarding the efficiency of the internal cash flows demonstrated in Section V.B. For example, the bank segment may have fewer investment opportunities than the non-bank segment. In that scenario, channeling funds from the bank segment via internal dividends and reallocating the capital to the non-bank segment would reflect an efficient internal reallocation of capital. Investment opportunities could differ due to business

operations, geographical presence, or regulation.

In this section, we explore how the internal cash flows between the parent and its subsidiary segments relate to the performance of segment investments. In particular, we contrast ex-post ROE across the bank and non-bank segments. In Table VI, we report the results. We observe the raw differences in bank and non-bank segment ROE for the pre-crisis, crisis, and post-crisis periods. We find that bank segment ROE was significantly higher in the pre-crisis and crisis periods than non-bank ROE, and not statistically different in the post-crisis period. Pooling across periods, we find that bank ROE was on average higher than non-bank ROE. Restricting attention to those BHCs with the greatest proportion of non-bank assets, we similarly find that pre-crisis returns on the bank segment are higher than those for the non-bank. For this sub-sample, we find no statistical difference in bank and non-bank returns during the crisis and post-crisis periods. We also report the relative risk-adjusted returns for the bank and non-bank segments across time periods, using the volatility of the previous eight quarters of segment ROE. Pre-crisis, we again find that the bank segment outperformed the non-bank segment in both the full and sub-samples of BHCs. However, we find that the bank segment underperformed the non-bank segment during the crisis on a risk-adjusted basis. Together, the findings are inconsistent with the view that the pre-crisis reallocation of bank segment capital to the non-bank through internal dividends management is due to better investment opportunities at the non-bank segment.

We further test the efficiency hypothesis by relating ex-post differences in segment performance to the cross-sectional variation in BHC reallocation of capital across segments. In particular, we evaluate a series of regressions of the form:

$$r_{it}^{b} - r_{it}^{nb} = \alpha NetCF_{i,t-1} + \epsilon_{it}$$

where the left hand side represents difference in returns on equity (raw or risk-adjusted) between banks and non-banks as a function of the capital reallocation between the segments through the parent. To measure the capital reallocation to banks relative to non-banks

($NetCF$), we first construct net cash flows from the parent to each segment as the difference between parent capital injections to the segment and segment dividends to the parent. We then define $NetCF$ as the difference in the bank and non-bank segment net cash flows with the parent. When $NetCF > 0$ this implies that the parent injected funds into the bank relative to the non-bank and vice versa when $NetCF < 0$. Under the hypothesis that the BHC efficiently pulls bank segment funds and reallocates them to the non-bank segment with better investment opportunity, we would expect $\alpha > 0$.

A. Results

In Table VII we report results for the pooled sample, along with pre-crisis, crisis, and post-crisis sub-samples. In addition, we report the results separately for all BHCs along with only those with the largest non-bank presences. In each specification, we do not find evidence that the internal cash flows support higher return non-bank investments. In the pre-crisis period, Columns 1 and 2 show that relative cash flows to the bank are associated with lower ex-post relative bank performance. This result holds for raw ROE (Column 1), risk-adjusted ROE (Column 2), and for the subsample of BHCs with large non-bank presence (Columns 3 and 4). Columns 5 show that during the crisis period there is no evidence that intracompany capital reallocation from banks to non-banks is associated with better investment opportunities using raw ROEs and evidence of the reverse using risk-adjusted ROEs (Column 6). The post-crisis period (Columns 7 and 8) and pooling across periods (Columns 9 and 10) also show that relative cash flows from segments to parents are correlated with worse ex-post investment performance.

Our findings that the non-bank segment underperforms the bank segment are generally consistent with the extant literature. For example, Demsetz and Strahan (1997), DeYoung and Torna (2013), Stiroh (2004), and Stiroh and Rumble (2006) all find that non-traditional banking activities are (weakly) less profitable and riskier than traditional banking activities.

B. Discussion

The reallocation of capital from the higher return bank segment to the lower return non-bank segment is consistent with existing theories of agency frictions arising in complex institutions. For example, Aron (1988) and Rotemberg and Saloner (1994) show how frictions between managerial and shareholder incentives make optimal incentive contracts more costly in broad conglomerates relative to narrower firms. Intrafirm agency frictions (Harris, Kriebel, and Raviv (1982)) between headquarters and division managers may also arise as financial institutions expand their scope. Alternatively, broader scope firms may suffer agency costs in the form of rent-seeking of managers within the firm (Scharfstein and Stein (2000)) as well as free cash flow incentive problems (Jensen (1986)). Laeven and Levine (2007) empirically weigh potential costs of diversification in financial firms against possible benefits.[5] They find that the market values of financial conglomerates involved in a broader array of financial activities are lower than if those firms existed as specialized standalone entities, consistent with theories on agency problems. While interesting, it is beyond the scope of this paper to address the source of the friction consistent with the inefficient reallocation of capital toward non-bank activities.

Instead, this paper focuses on how the value-decreasing expansions of financial activities affect the existing bank segments. To that end, our paper thus far suggests that in BHCs with both bank and non-bank segments, the parent pulls capital from the bank segment to funds its operations without benefit to the bank. The bank segment also funds the external distributions of the BHC to its shareholders and investments in the non-bank segments, despite evidence that the non-bank segment generally underperforms the bank. In the next section, we aim to show that there is a causal relationship between non-bank segment presence and bank segment internal dividend behavior. That is, parent imposes the costs of non-bank investments on the bank by pulling capital from the bank segment via internal dividends.

[5]Possible benefits include: information sharing of clients across segments (Saunders and Walter (1994), Stein (2002)) ; facilitating delegated monitoring (Diamond (1984)); easing information asymmetries with external suppliers of capital (Gertner, Scharfstein, and Stein (1994)).

VII. Bank Payout Policy and Non-bank Acquisition: Difference-in-Differences

In this section, we examine the extent to which the bank segment internal dividend behavior described in Section V is caused by the presence or activity of the non-bank segment. To do this, we use a difference-in-differences analysis surrounding the passage of the Gramm Leach Bliley Act (GLB) in 1999, which repealed the remaining barriers between banks and certain kinds of non-bank firms.

The fundamental rationale for GLB, also known as the Financial Services Modernization Act of 1999, was to "modernize" the industry by taking advantage of scope economies. As the President of the Federal Reserve Bank of Richmond, J. Alfred Broaddus, remarked, "There are substantial economies to be gained, for example, from combining credit evaluation for the banking and securities businesses in a single company...I think these [GLB created] combinations–precisely because they are being driven by basic potential economies of scale and scope–will increase efficiency in financial services markets..."[6]

GLB was the culmination of the removal of barriers between banks and other sectors within the financial services industry that had been erected following the Great Depression. Barriers between banks and certain financial sectors (for example, investment banking and insurance underwriting) were originally established under the Glass Steagall Act in 1933 under the view that banks had taken risks with depositor funds.[7] Nevertheless, Section 20 of Glass-Steagall allowed for some affiliation between banks and otherwise restricted non-banking activities as long as the non-bank was not "engaged principally" in the restricted activity. Over time, the Board of Governors of the Federal System (Federal Reserve), which was responsible for interpreting the provision of the act, relaxed its interpretation of "engaged principally." In 1987, the Federal Reserve allowed for the creation of Section 20 subsidiaries that engaged in some restricted activity, but below some specified amount of its overall business. In 1998,

[6] Broaddus (2000)

[7] Kroszner and Rajan (1994) suggest that such a view was unfounded.

Citicorp received a temporary waiver from the Fed, allowing it to merge with Travelers Insurance, as the merger was not permissible under Glass Steagall.

Passed on November 12, 1999, GLB enabled BHCs to elect to become a financial holding company (FHC) and engage in any activity deemed to be financial in nature or incidental to a financial activity. This provision included previously prohibited such as: securities underwriting and dealing, insurance underwriting, insurance agency activities, and merchant banking. GLB also authorized the Federal Reserve, working with the Secretary of the Treasury, to determine other permissible financial activities or incidental to financial activities. Federal Reserve Board of Governors (2003) notes that on March 13, 2000, the first day that BHCs were eligible to become FHCs, the Federal Reserve approved 117 applications (including both domestic BHCs and foreign banking organizations).

To determine the effect of non-bank activity on bank segment internal dividends, we use a difference-in-differences analysis to exploit the immediacy with which some firms applied to become FHCs relative to others. In particular, the desire of some BHCs, but not others, to become FHCs suggests that firms were differentially positioned to take advantage of scope-economies provided by non-banks. Alternatively stated, those firms that elected to become FHCs had been previously constrained in their ability to expand their non-bank activities by Glass Steagall. Meanwhile, we infer that those firms that did not elect to become FHCs had not previously been constrained. Consequently, we can view GLB as having removed obstacles on non-bank activity for the FHCs (the "treated" group), but as having no direct effect on those firms that did not opt to become FHCs (the "control" group).

Our analysis from Section V shows that for a given level of bank income, increased non-bank investment is associated with higher bank segment internal dividends. In our baseline difference-in-differences specification, we use GLB to determine whether non-bank segment expansion can be causally linked to bank segment payout policy. We define our "treated" group as those that were FHCs according to The National Information Center (NIC) in 2000. The "control" group is defined as those BHCs that did not elect to become FHCs at any

point through the end of 2003. The difference-in differences specification is as follows:

$$Payout_{jt} = \gamma_1 Treated_j + \gamma_2 Post_t + \gamma_3 Post_t * Treated_j + \Gamma Controls_{jt} + Year_t + \epsilon_{jt}, \quad (3)$$

where j and t denote banking organization and the time, respectively. $Payout$ is the bank segment of the banking organization's payout ratio. Note that in the baseline regressions we used dividends to consolidated assets and here our dependent variable is the payout ratio. In the baseline the objective is to determine uses and needs for cash among BHCs with non-bank business. However, in the case of Equation 3, we are comparing the bank segment of BHCs that are expanding their non-bank business to those that are not. Consequently, using consolidated assets in the denominator will bias our results downward as the treated sample is, by definition, expanding its consolidated assets away from the bank segment relative to the control sample.

The variable $Treated$ equals one for the treated sample (FHCs in 2000) and zero otherwise. $Post$ is equal to one for the years after FHCs could be established (2000 and after) and zero for the years before FHCs (1999 and earlier). The difference-in-differences estimator, γ_3, is the coefficient on the product of the $Treated$ and $Post$ variables. We consider the three-year period surrounding the creation of FHCs, 1997-2002, as the analysis period.

The vector $Controls$ contains variables that are correlated with the internal dividend decisions. These are logarithm of the bank segment asset size, profitability measured by the bank segment's return on assets (ROA), and external dividend payouts. Dividend studies generally find size to be a determinant of payout policy (e.g. Brown, Liang, and Weisbenner (2007)). Higher profitability makes it easier for the banking organization to pay higher dividends without attracting regulatory scrutiny. Finally, external dividend decision affects how much the holding company extracts cash from the segments. Hence, the external dividends can influence segment level dividends.

To be included in either the control or treated group, BHCs must be in existence through the end of 2002. We exclude firm-year observations for which information is not available and

winsorize all variables at the 1% level in each tail. We exclude observations with negative income because calculation of payout ratio becomes problematic.

A. Results

Table VIII presents the regression results for the difference-in-differences analysis. Column 1 reports estimates from the pooled regression approach, treating each BHC-year as a separate observation. The coefficient of interest on the interaction term shows that the bank segment payout ratios for the treated BHCs rose by 9.1 percentage points in the post GLB period relative to the control BHCs, significant at the 5% threshold. Column 2 shows the magnitude and statistical significant of the result holds after including various controls.

Bertrand, Duflo, and Mullainathan (2003) argue that the standard errors of a pooled difference-in-differences estimator are generally understated. To address this concern, they recommend aggregating each BHC's pre- and post-treatment data into a single pre- and single post-observation. Therefore, we construct the three-year payout ratio for each BHC in the pre- and post-GLB periods. Using this approach, we show in Column 3 that the payout ratios for treated BHCs rose by 12.1 percentage points relative to the control group, significant at the 1% level. In Column 4, we relax the requirement that FHCs remain in the sample through 2003, allowing all BHCs with at least one year in the post-GLB period to remain in the sample. The results remain quantitatively similar. Column 5 reports results from the specification of Column 3 with control variables. The results are again statistically and in magnitude similar. In Column 6, we rerun the specification of Column 5, but use a two-year window to construct the pre- and post-GLB observations. Estimates are similar in magnitude, though the statistical significance drops to the 5% level. In Columns 7 and 8 we perform a similar analysis of bank segment internal dividends relative to bank segment assets, rather than income. Column 7 reports that treated bank dividends grew by 0.01% of bank assets in the post-GLB period relative to the control group, significant at the 5% threshold. This result holds after the inclusion of control variables, though the significance level falls to

the 10% level.

We also perform a difference-in-differences analysis using a matched sample to address concerns that the treated and control groups are fundamentally different. For example, many of the treated firms may have already had Section 20 subsidiaries (as discussed above). Treated BHCs are also expected to be larger and, perhaps, different on other variables of interest. Table IX Panel A shows that in 1999, prior to the creation of FHCs, the control group tended to be smaller than the treated group (significant at 1% level) and less profitable (significant at the 10% level). Moreover, none of the control firms had a Section 20 subsidiary in advance of GLB.

To account for the pre-GLB differences between the treated and control groups, we use a nearest-neighbor propensity score matching with replacement. The pre-GLB matching variables that we use are log assets, bank capitalization, bank holding company dividends to assets, and bank holding company income. We exclude BHCs with Section 20 subsidiaries prior to the crisis, as this variable creates quasi-complete separation of the data. Table IX Panel B reports the pre-GLB differences in the treated and control groups for the matched samples. Unlike Panel A, the matched sample shows no statistical differences for any of the matched variables. Notably, the differences in size are eliminated through the matching procedure.

In the last row of Table IX Panel B we report the difference-in-differences estimator for the matched samples. For the treated group, the bank segment payout ratio rose by 13.4 percentage points following GLB. For the control group, the bank segment payout ratio was virtually unchanged following GLB, falling by 0.3 percentage points. The difference between the differences of the treated and control groups, 13.7, is statistically significant at the 5% level, and is quantitatively similar to the results presented in Table VIII. Therefore, it does not appear that our results are influenced by the measurable pre-GLB differences of the BHCs that elected to become FHCs versus those that did not. Also, it is important to note that GLB did not affect external dividends but affected the composition of internal dividends at the segment level.

B. Validity of Difference-in-Differences Estimator

To examine the validity of the difference-in-differences estimator, we show that parallel trends assumption holds. In the case of our sample firms, Figure 2 shows the level and trends of bank segment payout ratios for treated and control BHCs. For every year prior to 2000, when BHCs could first become FHCs, the payout ratios between the treated and control BHCs remained within five percentage points of one another and tended to rise and fall similarly. It is only following the election to become FHCs, the treated firms payout ratios deviate in level and trend from the control group. These trends are further born out in Figure 3, which plots the differences between treated and control group payout ratios. Statistically, there are no level differences between treated and control group bank segment payout ratios prior to GLB.

VIII. Conclusion

Our results show that BHCs use their bank segments to support the capital needs elsewhere within the company, specifically to support the external dividend policy and non-bank expansion. In addition, the parent pulls capital via internal dividends from the bank segment during good times, but does not relieve its demands on the bank during bad times. In contrast, the non-bank segment appears to be insulated from the parent's capital needs, paying internal dividends based only on its own performance. In addition, we show that the bank segment's funding of non-bank expansion is not associated with better non-bank performance. Instead, BHCs that transfer capital from the bank to the non-bank tend to have worse ex-post performance. Inefficient scope-expansion in BHCs, as found elsewhere in the literature, comes at the expense of the bank. We conclude that these results provide evidence that banks are a source of strength for the BHC.

This central result is a novel addition to the literature. It shows how internal capital markets are used to manage internal dividends to attain external dividends, to aid non-banks, and to use banks' resources to achieve the parent's acquisition goals. Toward this end, the paper shows for the first time how BHCs extract capital from segments that differ

in financial strengths. This result contrasts with the examination of the workings of internal capital markets through the lens of capital allocation between different segments.

In this respect, we show that acquisitions can have a substantial financial impact on the existing segments of the acquiring firms. However, our paper is silent on whether the bank segment's resources are used to mitigate the financial constraints of the non-bank subsidiaries or whether the motivation is to use non-bank expansion as a vehicle for risk shifting and regulatory arbitrage. Future research can sort out these differing motivations. Instead, our evidence that shows the channel through which the bank segment's resources can be used to provide financial flexibility to the non-bank segment. Banks are, by definition, cash rich, and thus provide a logical insurance mechanism for cash demands imposed by any rigidity from non-banking businesses or external dividend policy. This role might be in the primary interest to the BHC. However, it is not necessarily the same policy that would be neither followed by a standalone bank nor optimal from a social welfare perspective or that of a deposit insurer. How to reconcile these conflicts in an optimal theory of scope is an interesting theoretical and empirical question.

REFERENCES

Acharya, Viral V, Irvind Gujral, Nirupama Kulkarni, and Hyun Song Shin, 2013, Dividends and bnak capital in the financial crisis of 2007-2009, *NBER Working Paper* .

Aron, Debra J, 1988, Ability, moral hazard, firm size, and diversification, *The RAND Journal of Economics* 72–87.

Ashcraft, Adam B, 2008, Are bank holding companies a source of strength to their banking subsidiaries, *Journal of Money, Credit, and Banking* 40, 273–294.

Avraham, Dafna, Patricia Selvaggi, and James I Vickrey, 2012, A structural view of u.s. bank holding companies, *Economic Policy Review* 18, 65–81.

Ben-David, Itzhak, Ajay Palvia, and Chester Spatt, 2015, Banks' internal capital markets and deposit rates, *NBER Working Paper* w21526.

Benartzi, Shlomo, Roni Michaely, and Richard Thaler, 1997, Do changes in dividends signal the future or the past, *The Journal of Finance* 52, 1007–1034.

Bertrand, Marianne, Esther Duflo, and Sendhil Mullainathan, 2003, How much should we trust difference-in-differences estimates?, *The Quarterly Journal of Economics* 119, 249–275.

Board of Governors of the Federal Reserve System, 2016, *Bank Holding Company Supervision Manual*.

Broaddus, J Alfred, 2000, An overview of the gramm-leach-bliley act and brief remarks on the economy, Hampton Roads Chapter of the Robert Morris Associates [Accessed: 2018 07 31].

Brown, Jeffrey R, Nellie Liang, and Scott Weisbenner, 2007, Executive financial incentives and payout policy: Firm responses to the 2003 dividend tax cut, *Journal of Finance* 62, 1935–1965.

Campello, Murillo, 2002, Internal capital markets in financial conglomerates: Evidence from small bank responses to monetary policy, *The Journal of Finance* 57, 2773–2805.

Cetorelli, Nicola, and Linda Goldberg, 2012, Liquidity management of u.s. global banks: Internal capital markets in the great recession, *Journal of International Economics* 88, 299–311.

Cetorelli, Nicola, Michael G Jacobides, and Sam Stern, 2017, Transformation of corporate scope in u.s. banks: Patterns and performance implications, *Federal Reserve Bank of New York Staff Reports* 813.

Comment, Robert, and Gregg A Jarrell, 1995, Corporate focus and stock returns, *Journal of Financial Economics* 37, 67–87.

De Haas, Ralph, and Iman Van Lelyveld, 2010, Internal capital markets and lending by multinational bank subsidiaries, *Journal of financial Intermediation* 19, 1–25.

De Jonghe, Olivier, 2010, Back to the basics in banking? a micro-analysis of banking system stability, *Journal of financial intermediation* 19, 387–417.

Demsetz, Rebecca S, and Philip E Strahan, 1997, Diversification, size, and risk at bank holding companies, *Journal of Money, Credit, and Banking* 300–313.

DeYoung, Robert, and Gokhan Torna, 2013, Nontraditional banking activities and bank failures during the financial crisis, *Journal of Financial Intermediation* 22, 397–421.

Diamond, Douglas W, 1984, Financial intermediation and delegated monitoring, *The Review of Economic Studies* 393–414.

Erel, Isil, Yeejin Jang, and Michael S Weisbach, 2015, Do acquisitions relieve target firms' financial constraints?, *Journal of Finance* 70, 289–328.

Federal Reserve Board of Governors, 2003, Report to the congress on financial holding companies under the gramm-leach-bliley act, https://www.federalreserve.gov/boarddocs/rptcongress/glbarptcongress.pdf.

Floyd, Eric, Nan Li, and Douglas J Skinner, 2015, Payout policy through the financial crisis: The growth of repurchases and the resilience of dividends, *Journal of Financial Economics* 118, 299–316.

Gertner, Robert H, David S Scharfstein, and Jeremy C Stein, 1994, Internal versus external capital markets, *The Quarterly Journal of Economics* 109, 1211–1230.

Harris, Milton, Charles H Kriebel, and Artur Raviv, 1982, Asymmetric information, incentives and intrafirm resource allocation, *Management Science* 28, 604–620.

Holod, Dmytro, and Joe Peek, 2010, Capital constraints, asymmetric information, and internal capital markets in banking: New evidence, *Journal of Money, Credit and Banking* 42, 879–906.

Houston, Joel, Christopher James, and David Marcus, 1997, Capital market frictions and the role of internal capital markets in banking, *Journal of Financial Economics* 46, 135–164.

Houston, Joel F, and Christopher James, 1998, Do bank internal capital markets promote lending?, *Journal of Banking & Finance* 22, 899–918.

Jensen, Michael C, 1986, Agency costs of free cash flow, corporate finance, and takeovers, *The American Economic Review* 76, 323–329.

Kroszner, Randall S, and Raghuram G Rajan, 1994, Is the glass-steagall act justified? a study of the us experience with universal banking before 1933, *American Economic Review* 810–832.

Laeven, Luc, and Ross Levine, 2007, Is there a diversification discount in financial conglomerates?, *Journal of Financial Economics* .

Laeven, M Luc, Lev Ratnovski, and Hui Tong, 2014, Bank size and systemic risk, *International Monetary Fund* .

Matvos, Gregor, Amit Seru, and Rui C Silva, 2018, Financial market frictions and diversification, *Journal of Financial Economics* 127, 21–50.

Morck, Randall, Andrei Shleifer, and Robert W Vishny, 1990, Do managerial objectives drive bad acquisitions?, *Journal of Finance* 45, 31–48.

Rajan, Raghuram, Henri Servaes, and Luigi Zingales, 2000, The cost of diversity: The diversification discount and inefficient investment, *The Journal of Finance* 55, 35–80.

Rotemberg, Julio J, and Garth Saloner, 1994, Benefits of narrow business strategies, *The American Economic Review* 1330–1349.

Saunders, Anthony, and Ingo Walter, 1994, *Universal banking in the United States: What could we gain? What could we lose?*.

Scharfstein, David S, and Jeremy C Stein, 2000, The dark side of internal capital markets: Divisional rent seeking and inefficient investment, *The Journal of Finance* 55, 2537–2564.

Schoar, Antoinette, 2002, Effects of corporate diversification on productivity, *The Journal of Finance* 57, 2379–2403.

Shin, Hyun-Han, and René M Stulz, 1998, Are internal capital markets efficient?, *Quarterly Journal of Economics* 113, 531–552.

Stein, Jeremy C, 1997, Internal capital markets and the competition for corporate resources, *The Journal of Finance* 52, 111–133.

Stein, Jeremy C, 2002, Information production and capital allocation: Decentralized versus hierarchical firms, *The Journal of Finance* 57, 1891–1921.

Stein, Jeremy C, 2003, Agency, information and corporate investment, in G M Constantinides, M Harris, and R Stulz, eds., *Handbook of the Economics of Finance*, volume 1, chapter 2, 111–165.

Stiroh, Kevin J, 2004, Diversification in banking: Is noninterest income the answer?, *Journal of Money, Credit, and Banking* 853–882.

Stiroh, Kevin J, and Adrienne Rumble, 2006, The dark side of diversification: The case of us financial holding companies, *Journal of Banking & Finance* 30, 2131–2161.

Villalonga, Belen, 2004, Diversification discount or premium? new evidence from the business information tracking series, *The Journal of Finance* 59, 479–506.

Table I

	2001-2007				2008-10				2011-2015			
	mean	median	std	count	mean	median	std	count	mean	median	std	count
BHC Div/Consolidated Asset (%)	0.513	0.418	0.971	1,821	0.380	0.242	1.051	916	0.361	0.238	0.732	1,383
BHC Repurch/Consolidated Asset (%)	0.268	0.051	0.727	1,821	0.076	0.000	0.442	916	0.125	0.000	0.445	1,383
Bank Inc/Consolidated Asset (%)	1.362	1.333	0.874	1,821	0.072	0.585	1.805	916	0.991	0.988	0.995	1,383
Bank Div/Consolidated Asset (%)	0.791	0.671	0.706	1,821	0.425	0.281	0.594	916	0.576	0.436	0.680	1,383
Nonbank Inc/Consolidated Asset (%)	0.146	0.006	1.364	1,821	0.037	0.002	0.968	916	0.106	0.006	0.939	1,383
Nonbank Div/Consolidated Asset (%)	0.107	0.000	1.036	1,821	0.057	0.002	0.430	916	0.079	0.001	0.451	1,383
Consolidated Asset ($M)	23,100	1,469	125,000	1,821	35,400	1,607	213,000	916	54,200	1,863	272,000	1,383
Nonbank Assets ($M)	5,601	19	47,800	1,821	8,572	15	70,500	916	14,100	14	93,100	1,383
Bank Assets ($M)	20,000	1,566	105,000	1,821	29,700	1,621	175,000	916	42,000	1,901	217,000	1,383
Bank Capital/Bank Asset (%)	9.60	9.14	3.40	1,821	9.57	9.53	2.58	916	10.72	10.45	2.27	1,383
BHC Capital/Consolidated Asset (%)	12.91	8.75	50.25	1,821	12.80	8.97	52.50	916	13.14	10.13	39.13	1,383
Nonbank Capital/Nonbank Asset (%)	44.70	29.24	40.32	1,821	52.27	54.63	41.69	916	57.55	69.30	39.95	1,383

Table II: Baseline Regression Results. This sample includes all bank holding companies (BHCs) > $500 million reporting non-zero non-bank non-thrift assets on the Y-9LP. Panel A has the results for the bank segment, while Panel B has the results for their non-bank segments. Panels C and D have similar calculations that use external payouts inclusive of repurchases. The regressions are changes in segment dividends to parents on segment variables, other segment variables, and BHC variables over the period 2002 to 2007. All income and dividend variables are measured as a fraction of the BHC assets, while equity variables are measured as a ratio of segment equity to segment assets. Segment Income is measured as the changes in total income for the segments measured indirectly from the Y-9LP for non-banks and the Call Reports for Banks. The rest of the BHC Income is defined as the consolidated income less segment Income. For any variable "X", the notation is as follows: X(+)=max(X,0) and X(-)=min(X,0). The standard errors are clustered at the BHC level. The t-statistics are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	External Dividends Only				External Payouts, Incl Dividends and Repurchases			
	Panel A: Bank Segment		Panel B: Nonbank Segment		Panel C:Bank Segment		Panel D: Nonbank Segment	
	Δ Internal Dividends		Δ Internal Dividends		Δ Internal Dividends		Δ Internal Dividends	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ΔBank Inc	0.054		-0.004		0.059**		-0.005	
	(1.61)		(0.61)		(2.02)		(0.73)	
ΔBank Inc (+)		0.093**		-0.003		0.102**		-0.005
		(2.06)		(0.38)		(2.34)		(0.56)
ΔBank Inc (-)		0.018		-0.005		0.018		-0.006
		(0.48)		(0.48)		(0.54)		(0.53)
ΔNonBank Inc	-0.113		0.182***		-0.09		0.175***	
	(0.81)		(4.13)		(0.66)		(3.90)	
ΔNonBank Inc (+)		-0.27		0.167***		-0.246		0.166***
		(1.47)		(3.87)		(1.28)		(3.81)
ΔNonBank Inc (-)		0.106		0.200***		0.122		0.188***
		(0.49)		(3.08)		(0.61)		(2.86)
ΔExt Div	0.674***		-0.017		0.329***		0.013*	
	(6.76)		(1.15)		(7.49)		(1.82)	
ΔExt Div (+)		0.747***		-0.004		0.339***		0.015*
		(6.83)		(0.32)		(6.32)		(1.95)
ΔExt Div (-)		0.504**		-0.044		0.309***		0.009
		(2.57)		(1.30)		(4.77)		(0.79)
L.Own Eq/Asset	0.01	0.009	0	0	0.006	0.005	0	0
	(1.49)	(1.30)	(0.07)	(0.14)	(0.81)	(0.75)	(0.22)	(0.25)
log(BHC Asset)	0.036	0.069*	-0.001	0.002	0.006	0.028	-0.004	-0.004
	(0.92)	(1.67)	(0.16)	(0.20)	(0.15)	(0.64)	(0.45)	(0.40)
L.ROE Spread	-0.541	-0.356	1.061**	1.080**	0.069	0.239	1.004**	1.029**
	(0.21)	(0.14)	(2.25)	(2.20)	(0.03)	(0.09)	(2.08)	(2.05)
Year FE	Y	Y	Y	Y	Y	Y	Y	Y
R^2	0.059	0.06	0.055	0.054	0.085	0.086	0.058	0.057
N	1821	1821	1821	1821	1821	1821	1821	1821

Table III: Baseline Regression Results. This sample includes all bank holding companies (BHCs) > $500 million reporting non-zero non-bank non-thrift assets on the Y-9LP. Panel A has the results for 2008-2010, Panel B has the results for 2011-2015. Panel C pools across all years 2001-2015. All income and dividend variables are measured as a fraction of the BHC assets, while equity variables are measured as a ratio of segment equity to segment assets. Segment Income is measured as the changes in total income for the segments measured indirectly from the Y-9LP for non-banks and the Call Reports for Banks. The rest of the BHC Income is defined as the consolidated income less segment Income. For any variable "X", the notation is as follows: X(+)=max(X,0) and X(-)=min(X,0). The standard errors are clustered at the BHC level. The t-statistics are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	Panel A: 2008-2010		Panel B: 2011-2015		Panel C: 2001-2015	
	Bank	NonBank	Bank	NonBank	Bank	NonBank
	(1)	(2)	(3)	(4)	(5)	(6)
ΔBank Inc (+)	0.019	-0.009*	0.047**	-0.006*	0.041***	-0.007**
	(0.75)	(1.96)	(2.14)	(1.67)	(2.67)	(2.47)
ΔBank Inc (-)	0.072***	-0.004*	0.013	0.004	0.057***	-0.003
	(4.35)	(1.79)	(0.37)	(1.47)	(4.47)	(1.14)
ΔNonBank Inc (+)	0.361	0.073	-0.274	0.082*	-0.105	0.119***
	(1.41)	(1.06)	(1.51)	(1.87)	(0.84)	(4.41)
ΔNonBank Inc (-)	-0.196	0.128***	-0.265	-0.019	-0.111	0.112***
	(0.98)	(2.72)	(1.09)	(0.21)	(0.82)	(2.79)
ΔExt Div (+)	0.616***	-0.021	0.555***	0.027	0.665***	0.008
	(3.22)	(0.39)	(4.06)	(1.26)	(8.18)	(0.64)
ΔExt Div (-)	0.728***	0.031	0.325	0.026	0.557***	0.012
	(6.37)	(1.38)	(1.62)	(1.11)	(5.24)	(0.83)
L.Own Eq/Asset	0.007*	0.00	0.018***	0.00	0.011**	0.00
	(1.75)	(0.44)	(4.02)	(0.06)	(2.39)	(0.18)
log(BHC Asset)	-0.102	0.01	-0.016	0.00	-0.003	0.00
	(1.34)	(0.51)	(0.33)	(0.27)	(0.11)	(0.60)
L.ROE Spread	-0.887	-0.27	-3.769	-0.19	-1.76	0.42
	(0.17)	(0.37)	(1.40)	(0.48)	(0.96)	(1.34)
Year FE	Y	Y	Y	Y	Y	Y
R^2	0.14	0.039	0.067	0.01	0.101	0.03
N	916	916	1383	1383	4120	4120

Table IV: Baseline Regression Results. This sample includes all bank holding companies (BHCs) > $500 million reporting non-zero non-bank non-thrift assets on the Y-9LP. All regression are for bank segment internal dividends. Panel A has the results defining non-bank investments as both equity and debt. Panel B reports the results defining non-bank investments as only equity investments. The regressions are changes in segment dividends to parents on segment variables, other segment variables, and BHC variables over the period 2002 to 2007. All income and dividend variables are measured as a fraction of the BHC assets, while equity variables are measured as a ratio of segment equity to segment assets. Segment Income is measured as the changes in total income for the segments measured indirectly from the Y-9LP for non-banks and the Call Reports for Banks. The rest of the BHC Income is defined as the consolidated income less segment Income. For any variable "X", the notation is as follows: X(+)=max(X,0) and X(-)=min(X,0). The standard errors are clustered at the BHC level. The t-statistics are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	Panel A: Equity and Debt Investments		Panel B: Equity Investment Only	
	Bank	Bank	Bank	Bank
	(1)	(2)	(3)	(4)
ΔNonbank Inv	0.070**	0.074**	0.084*	0.090*
	(2.23)	(2.31)	(1.75)	(1.83)
ΔBank Inc	0.059*		0.056*	
	(1.66)		(1.66)	
ΔBank Inc (+)		0.099**		0.097**
		(2.18)		(2.10)
ΔBank Inc (-)		0.021		0.02
		(0.50)		(0.52)
ΔNonBank Inc	-0.11		-0.1	
	(0.79)		(0.74)	
ΔNonBank Inc (+)		-0.254		-0.233
		(1.38)		(1.28)
ΔNonBank Inc (-)		0.095		0.089
		(0.45)		(0.42)
ΔExt Div	0.663***		0.666***	
	(6.66)		(6.67)	
ΔExt Div (+)		0.747***		0.750***
		(6.87)		(6.84)
ΔExt Div (-)		0.468**		0.471**
		(2.39)		(2.42)
L.Own Eq/Asset	0.011	0.01	0.012*	0.01
	(1.64)	(1.41)	(1.77)	(1.53)
log(BHC Asset)	0.017	0.048	0.032	0.063
	(0.43)	(1.17)	(0.85)	(1.57)
ΔROE Spread	-0.086	0.056	0.074	0.219
	(0.03)	(0.02)	(0.03)	(0.08)
Year FE	Y	Y	Y	Y
R^2	0.061	0.062	0.06	0.061
N	1818	1818	1821	1821

Table V: Baseline Regression Results. This sample includes all bank holding companies (BHCs) > $500 million reporting significant non-bank non-thrift assets on the Y-9LP. Panel A reports results defining significant non-bank presence as at least 3% of consolidated assets held in non-banks. Panel B reports results defining significant non-bank presence as having a Y-11 non-bank filer. The regressions are changes in segment dividends to parents on segment variables, other segment variables, and BHC variables over the period 2002 to 2007. All income and dividend variables are measured as a fraction of the BHC assets, while equity variables are measured as a ratio of segment equity to segment assets. Segment Income is measured as the changes in total income for the segments measured indirectly from the Y-9LP for non-banks and the Call Reports for Banks. The rest of the BHC Income is defined as the consolidated income less segment Income. For any variable "X", the notation is as follows: X(+)=max(X,0) and X(-)=min(X,0). The standard errors are clustered at the BHC level. The t-statistics are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	Panel A: Y-9LP Nonbank Assets ≥ 3%			Panel B: Y-11 Nonbanks		
	Bank	Bank	NonBank	Bank	Bank	NonBank
	(1)	(2)	(3)	(4)	(5)	(6)
ΔNonbank Inv		0.089**			0.185**	
		(2.42)			(2.01)	
ΔBank Inc (+)	0.211***	0.223***	-0.022	0.339**	0.344**	-0.145*
	(2.69)	(2.82)	(1.05)	(2.22)	(2.42)	(-1.80)
ΔBank Inc (-)	-0.007	0.002	-0.004	0.044	0.059	0.031
	(0.12)	(0.04)	(0.27)	(0.35)	(0.47)	(1.06)
ΔNonBank Inc (+)	-0.388*	-0.391*	0.147***	-0.259	-0.338	0.369***
	(1.69)	(1.69)	(2.68)	(1.07)	(1.27)	(3.65)
ΔNonBank Inc (-)	0.084	0.062	0.286***	-0.068	-0.159	0.597***
	(0.29)	(0.21)	(3.21)	(0.22)	(0.50)	(2.78)
ΔExt Div (+)	0.587***	0.588***	0.001	0.557**	0.549**	-0.119
	(3.11)	(3.23)	(0.02)	(2.47)	(2.42)	(0.61)
ΔExt Div (-)	0.772***	0.645***	-0.148*	1.159***	1.171***	0.772*
	(3.25)	(2.71)	(1.66)	(3.65)	(3.83)	(1.66)
L.Own Eq/Asset	0.007	0.007	0.00	3.025*	2.879*	-0.012
	(1.01)	(1.16)	(0.81)	(1.84)	(1.78)	(0.35)
log(BHC Asset)	0.141**	0.117*	0.00	0.00	-0.028	-0.01
	(2.34)	(1.94)	(0.02)	0.00	(0.25)	(0.31)
ΔROE Spread	2.49	3.12	1.78	0.03	0.049	-0.02
	(0.44)	(0.57)	(1.07)	(0.57)	(0.82)	(0.96)
Year FE	Y	Y	Y	Y	Y	Y
R^2	0.062	0.068	0.077	0.195	0.085	0.195
N	650	650	650	299	299	299

Table VI: Segment ROEs. This table reports differences between bank segment and non-bank segment returns on equity across different sample periods and non-bank presence. Panel A reports differences in bank and non-bank returns on equity for the full sample of BHCs with Y-9LP non-bank assets as well as the subset of BHCs where non-bank assets are at least 3% of BHC consolidated assets. Panel B reports differences in bank segment and non-bank segment Sharpe Ratios using 8 quarter lagged ROE as the basis for the calculation of income volatility. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

			Count	Mean Difference	StdErr	T-stat
Panel A: Bank Less Nonbank Return on Equity	Nonbank Assets > 0	2001-2007	2012	0.07***	0.006	12.42
		2008-2010	1640	0.029***	0.006	4.59
		2011-2015	895	-0.012	0.011	1.08
		Pooled	4262	0.041***	0.004	9.83
	Nonbank Assets > 3% of Consolidated Assets	2001-2007	414	0.06***	0.012	5.14
		2008-2010	193	0.009	0.014	0.59
		2011-2015	121	-0.026	0.034	0.76
		Pooled	693	0.034***	0.010	3.53
Panel B: Bank Less Nonbank Sharpe Ratio	Nonbank Assets > 0	2001-2007	2001	4.269***	0.180	23.74
		2008-2010	1638	-0.874***	0.336	2.60
		2011-2015	894	-0.319	0.287	1.11
		Pooled	4249	1.755***	0.162	10.83
	Nonbank Assets > 3% of Consolidated Assets	2001-2007	414	2.064***	0.348	5.93
		2008-2010	193	-4.925***	1.100	4.48
		2011-2015	121	-1.268	0.783	1.62
		Pooled	693	-0.174	0.396	0.44

Table VII: Internal Segment Transfers and Ex-post Performance. This table reports regression results of ex-post bank segment performance relative to non-bank segment performance against lagged net segment cash flows with the parent. $NetCF$ is defined as the net cash flows from the bank segment to the parent (capital injections less dividends) less the net cash flows from the non-bank segment to the parent (capital injections less dividends). The left hand side is the differences in returns on equity (raw or risk adjusted) between the bank segment and non-bank segment. Columns 1 and 2 report results for 2001-2007 for all Y-9LP filers with non-bank assets. Columns 3 and 4 report results for the subset of BHCs with at least 3% of consolidated assets in the non-bank segment. Columns 5 and 6 report results for the full set of BHCs with non-bank assets during 2008-2010. Columns 7 and 8 report results for the full set of BHCs with non-bank assets 2011-2015, with Column 9 and 10 reporting results for the pooled sample. Standard errors are clustered at the BHC level. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	2001-2007		2001-2007: Nonbank > 3%		2008-2010		2011-2015		Pooled	
	ROE	Sharpe	ROE	Sharpe	ROE	Sharpe	ROE	Sharpe	ROE	Sharpe
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
L.Net CF	-2.782**	-111.172***	-4.241**	-143.137***	-3.15	-107.944**	-4.150***	-210.480***	-3.116***	-139.453***
	(2.51)	(3.16)	(2.04)	(2.85)	(1.57)	(2.47)	(3.34)	(2.72)	(3.59)	(3.66)
Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
R^2	0.016	0.014	0.016	0.051	0.003	0.029	0.01	0.017	0.022	0.063
N	1875	1867	393	393	929	928	1716	1714	4222	4212

Table VIII: Difference-in-Differences around Gramm-Leach-Bliley. This table reports results from regressions using Equation 3. Treated holding companies are BHCs in that become Financial Holding Companies during the first year of eligibility (2000) under GLB. Control BHCs are those that do not become FHCs at any time through year end 2003. *Post* is a dummy equal to zero before 2000 and one after. Unless stated otherwise, all samples impose that BHCs are in existence at the end of 2003. Column 1 reports results from a pooled regression over the three year period surrounding GLB, 1997-2002. Column 2 adds controls. Column 3 collapses each of pre- and post-periods into a single observation for each BHC, taking the cumulative three-year payout ratios for the pre- and post-periods. Column 4 reports results from a regression using the collapsed payout ratios, but relaxing the restriction that firms remain in the sample through the end of 2003. Column 5 adds controls to the specification of Column 3, using the collapsed three-year payout ratios and the restriction that BHCs survive through the end of 2003. Column 6 uses the collapsed two-year payout ratios. Columns 7 and 8 use the collapsed three-year dividends to bank segment assets as the dependent variable, rather than payout ratios. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	Payout Ratio Pooled (1)	Payout Ratio Pooled (2)	Payout Ratio 3-Year (3)	Payout Ratio 3-Year (4)	Payout Ratio 3-Year (5)	Payout Ratio 2-Year (6)	Dividend/Asset 3-Year (7)	Dividend/Asset 3-Year (8)
Post*Treated	0.091**	0.097**	0.121***	0.131***	0.119***	0.110**	0.001**	0.001*
	(1.97)	(2.07)	(2.62)	(2.9)	(2.63)	(2.08)	(1.98)	(1.93)
Post	-0.008	-0.011	-0.012	-0.023	-0.004	0.006	0.000	0.000
	(0.35)	(0.48)	(0.46)	(0.92)	(0.15)	0.21	(0.51)	(0.14)
Treated	0.024	-0.071*	0.005	-0.012	-0.085**	-0.086*	0.001	-0.001
	(0.63)	(1.71)	(0.12)	(0.31)	(2.17)	(1.93)	(1.05)	(1.53)
Ln(Asset)		0.065***			0.062***	0.069***		0.001***
		(5.75)			(5.61)	(5.23)		(4.61)
BHC Dividend		9.547			20.456**	20.743**		0.471**
		(1.52)			(2.25)	(2.23)		(2.37)
Bank ROA		-0.712***			-0.490***	-0.756***		0.003
		(6.99)			(6.63)	(7.16)		(0.71)
Constant	0.544***	-0.392***	0.531***	0.547***	-0.399***	-0.494***	0.006***	-0.006***
	(22.78)	(2.60)	(20.93)	(23.11)	(2.80)	(2.84)	(19.81)	(2.81)
R^2	0.01	0.06	0.01	0.01	0.13	0.11	0.01	0.23
N	2162	2150	828	970	822	823	828	822
Treated	586	584	207	207	207	208	207	207
Untreated	1576	1566	621	763	615	615	621	615

Table IX: Difference-in-Differences of Payout Ratios for Matched Sample. Treated holding companies are BHCs in 1999 that become Financial Holding Companies during the first year of eligibility (2000) under GLB. Control BHCs are those that do not become FHCs at any time through year end 2003. Treated and control firms are matched on size, ROA, bank capitalization and parent payouts using 1998 data. All BHCs in the data with Section 20 subsidiaries as of 1998 become FHCs and treated firms with such subsidiaries cannot be matched on this variable and are excluded. BHCs are matched using a nearest neighbor propensity score matching with replacement and a tolerance of 0.01. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	Treated			Control			Difference
Variable	Obs	Mean	Std Dev	Obs	Mean	Std Dev	
		Panel A: Unmatched					
Log Assets	94	15.35	1.902	235	14.03	0.891	1.317***
ROA	94	0.0133	0.009	235	0.0113	0.006	0.002*
Bank Capital	94	0.0882	0.059	235	0.0847	0.021	0.004
BHC Div to Asset	94	0.0042	0.003	235	0.0037	0.003	0.001
		Panel B: Matched					
Log Assets	82	14.884	1.558	82	14.79	1.333	0.089
ROA	82	0.0131	0.010	82	0.0136	0.009	-0.001
Bank Capital	82	0.0890	0.064	82	0.0836	0.022	0.005
BHC Div to Asset	82	0.0039	0.003	82	0.0045	0.003	-0.001
ΔPayout	82	0.1338	0.393	82	-0.0031	0.321	0.137**

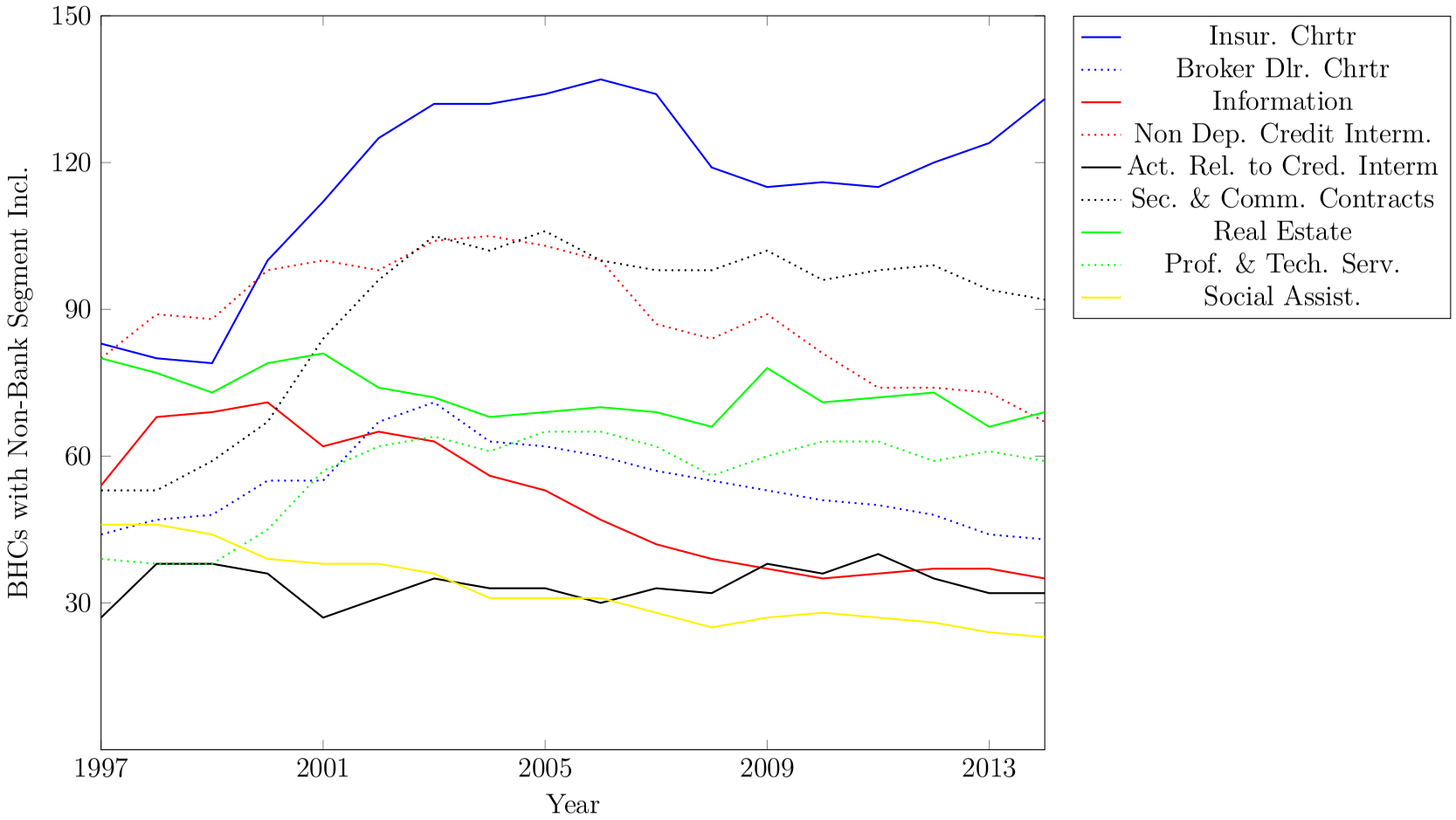

Figure 1: Number of BHCs in the baseline Y-9LP data with at least one of each non-bank type represented in the non-bank segment. Non-bank subsidiaries that are part of the bank segment are not included. Non-bank types are defined by the charter type code for insurance and broker dealers and by primary NAICS codes (at 2- to 4-digit levels for aggregation purposes) for all other subsidiaries.

Figure 2: Bank Payout Policy Surrounding GLB Average bank segment payout ratios for the treated and control groups surrounding the passage of GLB and the election to become FHCs. BHCs could first elect to become FHCs in March 2000. Treated BHCs are those that elected to become FHCs during that first year. Control BHCs are those that did not elect to become FHCs at any time through the end of 2003.

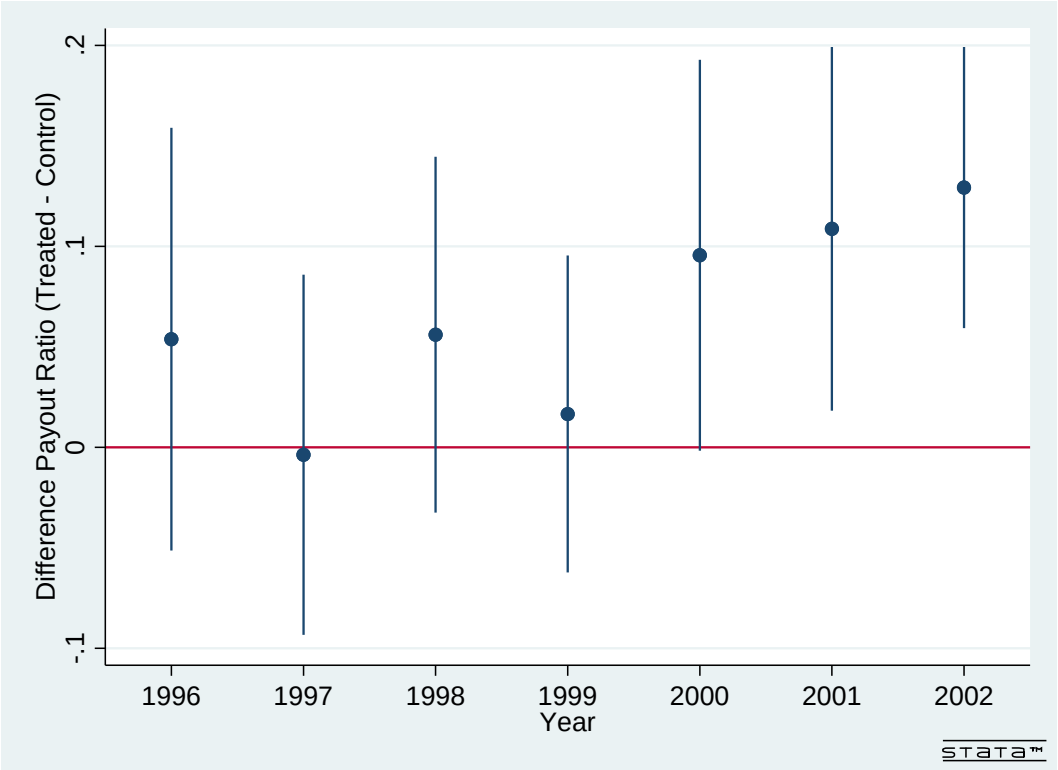

Figure 3: Differences in average bank segment payout ratios for the treated and control groups surrounding the passage of GLB and the election to become FHCs with 90% confidence intervals. BHCs could first elect to become FHCs in March 2000. Treated BHCs are those that elected to become FHCs during that first year. Control BHCs are those that did not elect to become FHCs at any time through the end of 2003.

Appendix A. Bank and non-bank classification, sample construction, and data sources

Bank and non-bank classification Figure A.4 displays a stylized structure of a bank holding company (BHC). Four major types of subsidiaries exist in this BHC; bank (and/or savings and loan), intermediate BHC, intermediate non-bank holding company, and non-bank. Segments in each of these categories can further expand vertically by owning other subsidiaries. To complicate the structure further, these major categories can be divided into domestic and foreign segments creating an extremely complex structure for a BHC, although our analysis focuses only on domestic subsidiaries. In this structure the parent is often referred to as the top-tier holder or high-holder. All top-tier holding companies must file annual reports (FR Y-6, FR Y-7) that explain their organizational structure. In addition, top-tier holding companies must also file a report (FR Y-10) on any changes in their organizational structures that must be filed within 30 days of a reportable event.

We use these structure data to separate banks from non-banks within the organization. In particular, we define banks to be the legal entity filing a Call Report, which may include non-bank subsidiaries held within the bank. Each bank within a BHC is necessarily owned by a holding company (which may be intermediate or top-tier).

We define "non-banks" as those that have a BHC parent and are not thrifts (entities "F" and "H" in Figure A.4). This is done because non-bank activity is measureable from the Y-9LP parents, but also to avoid double counting income and dividends in the BHC. For example, suppose subsidiary "I" in Figure A.4 made $1 of income and up-streamed it to its parent "F", who then up-streamed it to the top-tier ("A"). Both the dollar of income and the dividend would be recorded on the filings of both "I" and "F". Counting only the income and dividends from "F" avoids this problem.

We use this classification to form bank and non-bank segments. We aggregate income and dividend variables of bank and non-bank subsidiaries within each BHC to establish these flow variables for the two segments. We also sum assets across subsidiaries and calculate asset-weighted capital ratios by segment. In the context of Figure A.4, the bank segment variables are created by combining data from entities "C" and "G" and the non-bank segment variables are created by combining data from entities "F" and "H."

Data Sources

Our study requires financial statement data for banks, non-banks, and the higher-holder operations on a stand-alone basis. We use a number of regulatory filings to compile our data. Looking at Figure A.4, the set of filings in the analysis are those filed by the entities with the thick outlines. This set includes banks (entities "C" and "G"), Y-9LP filings of intermediate BHCs ("D"), and the high holder ("A").

For the higher holders' operations we use the Parent Company Only Financial Statement (FR Y-9LP) that large parents ($500 million or more) must file with the Federal Reserve System (Fed).[8] In addition, we use the Consolidated Financial Statement for Holding Com-

[8]In 2015 this size limit increased to $1 billion.

panies (FR Y-9C) that the holding companies with total consolidated assets of $500 million or more have to file with the Fed.[9] This consolidated report represents on and off-balance sheet activities of all subsidiaries in the BHC.

For banks, we use the Consolidated Reports of Condition and Income (FFIEC 031/041 or simply Call Report) that each federally insured depository institution (denoted as bank) with branches and subsidiaries in the United States must file with the FDIC or the Board of Governors of the Fed. This is a detailed report of on and off-balance sheet items as well as income statements of the consolidated bank operations. Because a depository institution can have its own subsidiaries, the reporting is done on a consolidated basis.

In robustness analysis, we use material domestic non-bank subsidiaries of U.S. holding companies that are Y-9C filers must file financial statements (FR Y-11) with the Fed. However, the Y-11 forms are not required of subsidiaries that have separate reporting requirements (e.g. insurance companies or broker dealers). Therefore, this sample misses these non Y-11 filers, but includes them implicitly if they are owned by another Y-11 filer. The Y-11 forms are filed on a legal entity (not consolidated) basis.[10]

[9] In 2015 this size limit increased to $1 billion. Prior to 2006, the reporting threshold was $150 million. For consistency, we include only bank holding companies above the $500 million threshold throughout.

[10] This distinction does not matter for our income or dividend measures, but does matter for stock variables such as assets. As such, we rely minimally on the latter.

Table A.10: Data Definitions and Sources

Variable	Source	Item	Notes
Holding Company Assets	Y-9C	BHCK2170	Average between reports, denominator for all income and dividend variables
Bank Subsidiary Income	FFIEC031/041	RIAD4340	Sum over all banks and thrifts
Non-Bank Subsidiary Income	Y-9LP	BHCP1275+BHCP3147	Sum over parent and all intermediate BHCs. Subtract any thrift income. from Call Reports.
	Y-11	BHCS4340	Sum over all "High" Non-bank filers. Subtract any thrift income from Call Reports held within Y-11 filer.
Bank Dividends	FFIEC031/041	RIAD4475	Sum over all banks and thrifts.
Non-Bank Subsidiary Income	Y-9LP	BHCP1275+BHCP3147	Sum over parent and all intermediate BHCs. Subtract any thrift income from Call Reports.
	Y-11	BHCS4598	Sum over all "High" Non-bank filers. Subtract any thrift dividends from Call Reports held within Y-11 filer.
External Dividends	Y-9LP	BHCP6742	Cash payouts on common stock
External Payouts	Y-9LP	BHCP6742 + BHCP6741 + BHCP8518	Includes preferred and common dividends and repurchased
BHC Book Equity	Y-9C	BHCK8274	Expressed relative to Holding Company Assets.
Bank Book Equity	FFIEC031/041	RCFA8274	Sum of Tier 1 Capital over all banks and thrifts, relative to total bank assets (sum over bank subsidiary assets on FFIEC031/041).
Non-Bank Book Equity	Y-9LP	BHCP1273/BHCP2792	Sum numerator and denominator across parent and intermediate BHCs. Subtract from numerator and denominator any thrift equity and assets.
	Y-11	BHCS3210	Sum of Capital over all "High" Non-bank Y-11 filers, Expressed relative to total non-bank assets (sum over all "High" Non-Bank subsidiary filer assets on Y-11). Expressed in bps for more easily readable coefficients.

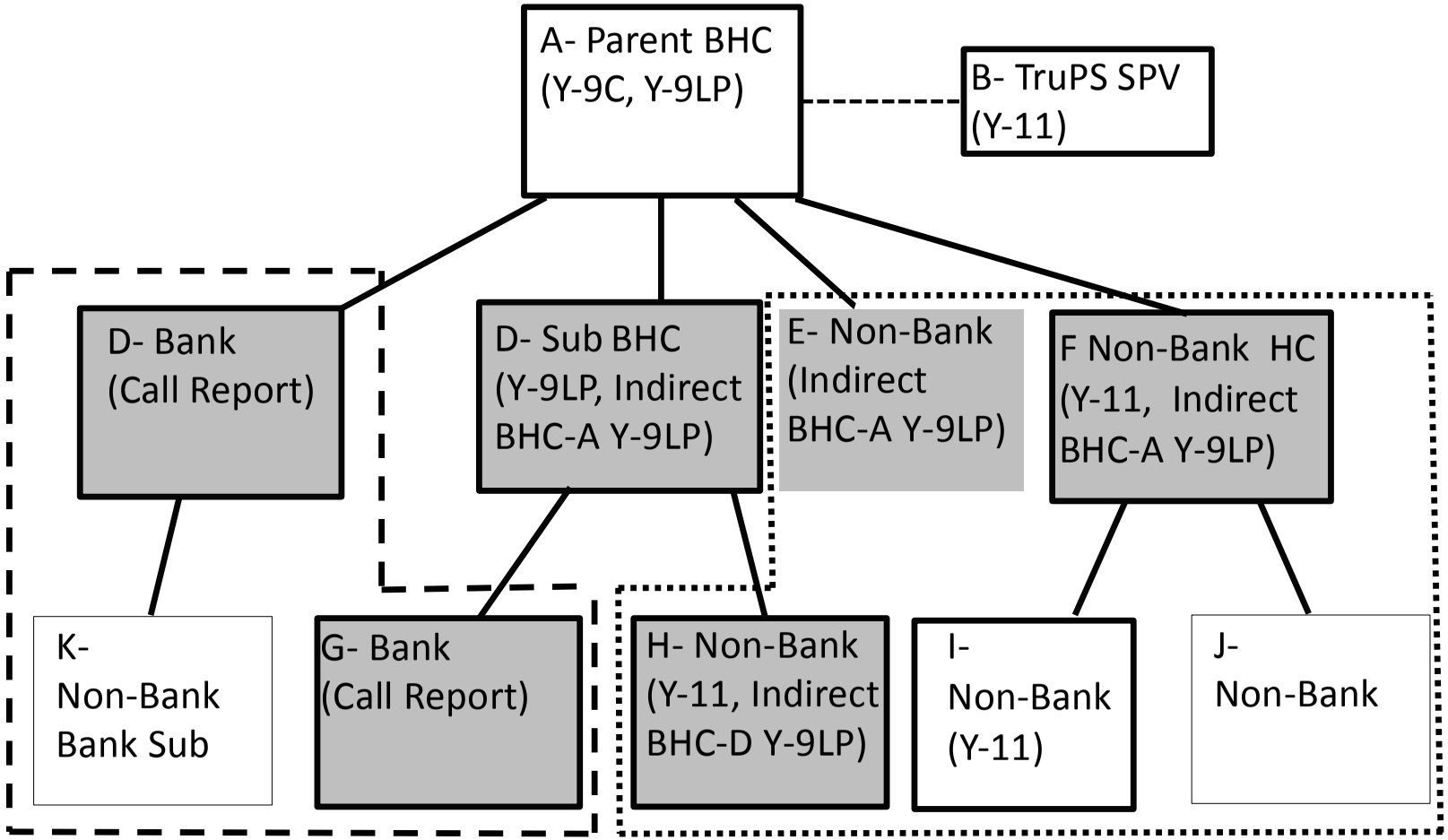

Figure A.4: Stylized Structure of a Bank Holding Company. The bank segment in the paper combines data from Banks C and G. The nonbank segment combines data from Nonbanks E, F and H, measured indirectly from Y-9LP data. Subsidiaries that can be measured directly have a thick outline. Subsidiaries that can be measured indirectly through their direct parent are shaded. The top Parent is A. Segment income and dividend variables are obtained by summing over all BHCs within the organization.

Appendix B. Internal and external dividend flows

In this appendix we use the industry sample (all Y-9C filing BHCs with more than $500 million in assets) to provide industry-level summary information on the internal and external dividend flows from the two segments to the parent during 2002 to 2014.

In Panel A of Table A.11, we show data on the internal dividend payout rates of bank and non-bank segments as well as external payout rates. In Panel B we construct the sources of the parents' income and expenditures. All values are in 2014 constant dollars. Variable definitions and data sources are as in Table A1.

Table A.11 shows that the bank segment has a significantly higher payout rate relative to the non-bank segment in all five years. On average, during 2002 to 2007, the bank segment's payout rate was 66 percent while the non-bank segment's was 45 percent. Except for 2002 and 2007, the bank segment's payout rate appears to be around 60 percent. However, 2007 proves to be a remarkable year when the bank segment paid out 83 percent of its income to the parent as internal dividends. However, this rate is a consequence of remitting the same dollar amounts of internal dividends despite a sharp decline in income. The peak crisis year continues this trend. The bank segment's income declines in aggregate from $92 billion in 2007 to $20 billion in 2008 but the internal dividends far exceeds the income yielding a 221 percent payout rate.

When we look at the parent's decision on an external payout we observe that the aggregate dollar amount of dividends (and total payouts) increase steadily in constant dollars from 2002 to 2007 regardless of the income levels. While the dividend payout rate is on average 64 percent, the total payout (dividends and share repurchases) to shareholders is on average 120 percent of income.[11] Once again, 2008 proves to be an interesting year. The external dividend payout rate reaches to be 133 percent and with share repurchases this rate goes up to 149 percent. However, in 2008 TARP enabled BHCs to raise significant amounts of new capital, which totaled to $317 billion for this sample while dividends and repurchases totaled $63 billion. So, in aggregate while the bank industry was receiving TARP capital in 2008 it was at the same time paying out and repurchasing shares at significant rates.

From 2010 to 2014 we observe a slight decrease in both bank and non-banks' internal payout ratios. External dividends, on the other hand, decrease significantly to 41 percent. Similarly, the total payout ratio declines to 104 percent. The restrictions on dividend payments and increased capital requirements during 2010 to 2014 are responsible for this change in the payout policy of the BHC.

Panel B of Table A.11 provides sources of income and expenditures at the parent level. In terms of income, we observe that the bank segment provides the bulk of the income (75 percent), non-banks provide a significant portion (21 percent), and parent's income from its own operations generate a small amount (4 percent) during 2002 to 2007. Furthermore, non-banks account for up to 33 percent of the parents' income in 2005 despite their smaller asset size.

On the expense side, interest constitutes the largest expense item (17 percent average over the sample period). Further, the majority of other expenses include interest payments

[11] Note that this total payout rate excludes TruPS dividends paid to investor.

to TruPs subsidiaries to be paid by the subsidiary to holders of trust preferred stock as preferred dividends. In other words, TruPS payments add an average of 3 percent to total payouts if we assume the entire amount of other expenses consist of TruPS dividends.[12] Another noteworthy item among expenses is the tax savings. This item emerges when the consolidated tax expense is less than the tax remittances that individual subsidiaries send to the parent. The parent keeps the difference as an additional source of income. During the sample period such tax savings (or excess taxes collected from the subsidiaries) amount to 4 percent of the operating income.

The difference between income and expense (net income after taxes, NIAT) establishes the basis for the external distributions to shareholders reported in Panel A. Table B2 also shows inflow-outflow numbers at the parent level during the crisis year of 2008. We observe that the income received from banks as a percent of the parent's total income (88 percent) exceeded the average during 2002 to 2007, which is 74 percent. The non-banks' income's share also increased. However, parents' losses on their own operations put a substantial hit on the total income. On the expense side, interest expense increased drastically but tax savings created an important resource for the parent.

Finally, we observe that during 2002 to 2007, 35 percent of the parent BHCs have distributions to shareholders that exceed NIAT, which implies a depletion of capital. During 2010 to 2014 this ratio declines to 30 percent that indicates more discipline in bolstering the banks' capital ratios after the crisis.

[12]TruPS dividends are counted as expense because the parent pays tax-deductible interest payments to subsidiaries, which issue TruPS. The interest payments are passed through these subsidiaries and paid to the investors as preferred dividends.

Table A.11: Subsidiary Income and Distributions (Panel A) and Parent Income and Distributions (Panel B)

Panel A															
Holding Company	2002	2003	2004	2005	2006	2007	02-07 Avg	2008	2009	2010	2011	2012	2013	2014	10-14 Avg
Banks															
Net Income ($bn, '14)	98	111	109	116	127	92	109	20	-9	79	108	121	134	126	114
Internal Div ($bn, '14)	72	70	58	69	79	76	71	45	40	56	70	83	74	76	72
Payout Ratio	74%	63%	54%	59%	63%	83%	66%	221%	N/A	71%	65%	69%	55%	61%	64%
NonBanks															
Net Income ($bn, '14)	20	26	25	43	48	31	32	-22	78	46	49	40	43	36	43
Internal Div ($bn, '14)	9	9	6	31	21	15	15	7	16	21	20	11	14	22	17
Payout Ratio	44%	35%	25%	73%	43%	49%	45%	N/A	20%	46%	41%	27%	31%	60%	41%
Parent															
Net Income ($bn, '14)	79	75	60	96	92	81	80	43	34	58	70	65	69	80	69
External Div ($bn, '14)	38	43	49	56	58	62	52	56	31	20	26	29	32	36	29
Div Plus Repurch ($bn, '14)	77	84	81	109	114	116	97	63	190	48	74	62	90	83	72
Equity Raises ($bn, '14)	13	26	28	23	27	19	22	317	193	38	36	35	30	46	37
Dividend Payout Ratio	48%	57%	81%	58%	63%	77%	64%	133%	92%	34%	37%	45%	46%	45%	41%
Total Payout Ratio	97%	111%	135%	113%	125%	144%	120%	149%	560%	83%	106%	95%	131%	103%	104%

Panel B Holding Company	2002	2003	2004	2005	2006	2007	02-07 Avg	2008	2009	2010	2011	2012	2013	2014	10-14 Avg
Inflows from Banks and Subsidiary HCs (% Total Op Inc)															
Dividends	70%	69%	66%	51%	57%	57%	62%	58%	42%	45%	52%	68%	60%	61%	57%
Interest	5%	5%	8%	7%	9%	12%	8%	14%	6%	3%	3%	2%	2%	2%	2%
Fees	5%	7%	7%	4%	5%	5%	5%	3%	3%	4%	2%	2%	2%	2%	3%
Total	80%	81%	81%	63%	71%	75%	75	85%	39%	53%	60%	72%	66%	63%	63%
Inflows from Non-Banks (% Total Op Inc)															
Dividends	11%	12%	9%	28%	17%	13%	15%	11%	18%	18%	16%	9%	11%	17%	14%
Interest	3%	2%	3%	4%	7%	8%	5%	11%	16%	10%	9%	10%	10%	9%	10%
Fees	1%	1%	1%	1%	1%	1%	1%	0%	1%	1%	0%	1%	1%	1%	1%
Total	14%	15%	13%	33%	26%	23%	21%	22%	47%	35%	26%	25%	28%	29%	29%
Parent Operational Revenue (% Total Operating Income)															
Securities Gain/Loss	2%	1%	2%	0%	0%	0%	1%	-2%	-6%	2%	9%	-3%	1%	1%	2%
Other	3%	3%	5%	4%	3%	2%	3%	-5%	20%	10%	5%	5%	5%	7%	6%
Total	5%	4%	7%	4%	3%	2%	4%	-7%	14%	12%	14%	3%	6%	8%	8%
Total Parent Operating Income ($Bn, 2014)	100	98	84	129	133	129	112	81	76	111	128	117	117	118	118
Parental Operational Expenses (% Total Op Inc)															
Salary	4%	5%	6%	4%	4%	4%	5%	3%	7%	5%	4%	5%	5%	3%	4%
Interest	12%	11%	14%	16%	22%	28%	17%	39%	41%	29%	28%	27%	22%	24%	26%
Other Expenses	9%	10%	13%	8%	9%	11%	10%	20%	23%	22%	21%	23%	28%	12%	21%
Tax Savings (Parent)	-4%	-3%	-4%	-3%	-4%	-5%	-4%	-14%	-16%	-7%	-7%	-11%	-14%	-8%	-10%
Total	21%	23%	29%	26%	31%	37%	28%	48%	55%	48%	45%	44%	41%	32%	42%
Parent Expenses ($Bn, '14)	21	23	24	33	42	48	31	39	42	53	57	51	48	37	49
Par Net Inc After Tax ($Bn, '14)	79	75	60	96	92	81	80	43	34	58	70	65	69	80	69
External Distributions															
Payout Ratio (External dividends/NIAT)	48%	57%	81%	58%	63%	77%	64%	133%	92%	34%	37%	45%	46%	45%	41%
Repurchase (Rep-Eq Raise / NIAT)	32%	19%	7%	30%	32%	42%	27%	-766%	-80%	-14%	18%	-4%	39%	1%	8%
Total Payout Ratio (Ext div+Repurch/NIAT)	80%	77%	88%	88%	94%	119%	91%	N/A	12%	20%	55%	41%	85%	46%	49%
Proportion of BHCs with Distributions>NIAT	32%	32%	32%	37%	35%	42%	35%	37%	33%	32%	29%	31%	28%	28%	30%
N	606	647	687	759	796	799	716	813	848	845	863	870	878	889	869